A. Chapter Overview

The main focus of this chapter is an SFA Level I and II Modernization Architecture that fits into the Modernization Blueprint Framework illustrated in Figure IV.A-1. Levels I and II describe the target architecture for the SFA modernization plan. Within this chapter, business process requirements identified in Chapter III were evaluated to establish modernization architecture process flows and supporting business systems at Level I. Business subprocess requirements from Chapter III were evaluated to establish modernization architecture subprocess flows and subsystems at Level II.

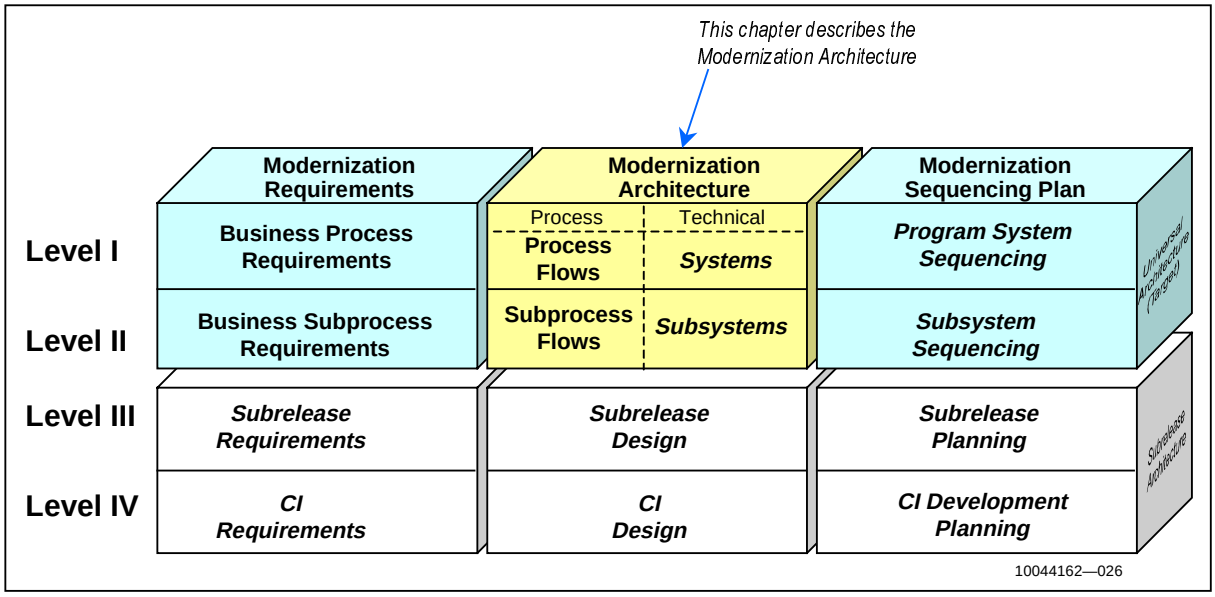

Figure IV.A-1. Modernization Blueprint Framework

The Modernization Architecture is decomposed into two components at Levels I and II: the Business Process Architecture and the Technical Architecture. These provide a target technical architecture from which the enterprise can build an information environment that addresses its long-term needs.

The **Business Process Architecture** (Section B) outlines Level I and II business processes/subprocesses performed by the enterprise and the data required to support the processes. This architecture is a preliminary, essential element for requirements management and for the conceptualization, development, and deployment of business applications.

The data at Levels I and II of the architecture are expressed in terms of subject areas and information flows. Subject areas are groupings of related data that capture basic enterprise business rules. They represent an integrated view of data required to support the enterprise, independent of current or future organizational structures, business

applications and technical implementation. These are often represented in enterprise models that are used to manage data standardization.

The **Technical Architecture** (Sections C through E) is composed of a Business Systems Architecture, a Target Technical Architecture, and a Privacy Architecture.

- The Business Systems Architecture (Section C) is a high-level initial identification of the business systems to be developed. It identifies business systems (Level I) and subsystems (Level II), their databases and external interfaces. It includes a high-level description of each system/subsystem's capabilities and traces the descriptions to the requirements in Chapter III.
- The Target Technical Architecture (Section D) describes key technical elements (e.g., access methods, hardware, software, communications, security) that were considered in implementing the Business System Architecture. The Target Technical Architecture is decomposed into Levels I and II Target Technical Architectures. The Level I Target Technical Architecture describes an overall technical architecture at the system level. The Level II Target Technical Architecture explains the application of some key technical elements to each subsystem.
- The Privacy Architecture (Section E) provides a concept for implementing security that addresses major privacy concerns, such as sender authentication message data integrity and customer confidentiality, inherent in the modernized architecture.

Section F of this chapter contains Level III design statements and specifications for five selected projects that could be considered candidates for delivery as part of subrelease 1 of the modernization architecture implementation.

Sections G, H, I, J, K, and L of this chapter briefly describe recommended approaches to enterprise requirements management, application development, enterprise model management, configuration management, system integration and testing, deployment, and post deployment maintenance that can be used to guide SFA in its transition to a modernized enterprise architecture.

- Section G describes a requirements management approach that captures requirements statements in a requirements database. The database is used to ensure that all requirements are implemented in a system, and to produce a requirements traceability document showing the implementation of requirements in every phase of the systems development lifecycle.
- Section H describes an approach to Rapid Application Prototyping/Rapid Application Development (RAP/RAD) using reusable system components (common logic that can be reused by multiple applications to standardize business processes, calculations, etc.). It includes a description of how reusable components are conceptualized, developed, and deployed across multiple systems to improve standardization and reduce the time and cost of development. This

section also describes the role of the Integration Services provided by the Enterprise Application Integration (EAI) toolset.

- Section I provides an overview of the SFA enterprise model management strategy. This strategy provides a mechanism for managing the data standardization process that will be used to assist SFA to move towards a more integrated environment.
- Section J describes an approach to configuration management that captures requirements statements in a requirements database. The database is used to ensure that all requirements are implemented in a system, and to produce a requirements traceability document showing the implementation of requirements in every phase of the systems development lifecycle.
- Section K describes an approach to system integration and testing that captures requirements statements in a requirements database. The database is used to ensure that all requirements are implemented in a system, and to produce a requirements traceability document showing the implementation of requirements in every phase of the systems development lifecycle.
- Section L describes an approach to deployment that captures requirements statements in a requirements database. The database is used to ensure that all requirements are implemented in a system, and to produce a requirements traceability document showing the implementation of requirements in every phase of the systems development lifecycle.

Chapter Contents

		Page
A.	Chapter Overview	IV.A-1
B.	SFA Business Process Architecture	IV.B-1
B.1	Enterprise Conceptual Process Model	IV.B-2
B.2	Level I SFA Enterprise Conceptual Data Model – Subject Areas	IV.B-10
B.3	Level I SFA Business Process Action Matrix	IV.B-12
B.4	Level I Process Flows	IV.B-13
B.5	Level II SFA Enterprise Conceptual Data Model – Subject Areas	IV.B-45
B.6	Level II SFA Business Subprocess Action Matrix	IV.B-50
B.7	Level II Subprocess Flows	IV.B-53
B.8	Subject Areas Mapped to Current Systems	IV.B-176
C.	SFA Business Systems Architecture	IV.C-1

Chapter Contents **Page**

C.1	Level I SFA Enterprise Systems Architecture	IV.C-1
C.2	Level II SFA Business Systems Architecture	IV.C-16
D.	SFA Target Technical Architecture	IV.D-1
D.1	Overview	IV.D-1
D.2	Level I SFA Target Technical Architecture	IV.D-4
D.3	Level II Target Technical Architecture	IV.D-12
E.	SFA Privacy Architecture	IV.E-1
F.	Level III Design Specifications	IV.F-1
F.1	SFA Release 1.0 Project Design Statements and Specifications	IV.F-1
F.2	Ombudsman Case Tracking System	IV.F-2
F.3	Links to Financial Planning Sites	IV.F-6
F.4	FAFSA Web Updates	IV.F-8
F.5	General Ledger Management	IV.F-10
F.6	Digital IDs Registration	IV.F-14
G.	SFA Enterprise Requirements Management	IV.G-1
H.	An Approach: Rapid Application Prototyping/Rapid Application Development (RAP/RAD)	IV.H-1
I.	SFA Enterprise Model Management	IV.I-1
J.	An Approach: Configuration Management	IV.J-1
K.	An Approach: System Integration and Testing	IV.K-1
L.	An Approach: Deployment	IV.L-1

B. SFA Business Process Architecture

The primary objective of the Business Process Architecture is to provide a high-level view of the Student Financial Aid areas of the Department of Education. This view encompasses both the functions performed and the data required to support the SFA mission. Other major objectives of the Business Process Architecture are:

- To build a high-level view of SFA business process activities, independent of organizational structure.
- To build a high-level view of the inherent data structures required to support SFA.
- To gain insight into the support of data for activities.
- To identify probable SFA Business Process applications.

The Business Process Architecture provides a stable model regardless of organization realignments. The robust nature of the Business Process Architecture is due to the functional view that it takes of the SFA processes and not an organizational view of the duties assigned to a particular office. The emphasis of the Business Process Architecture is identifying the "what" of SFA, not the "how". Because the Business Process Architecture reflects a stable model of SFA, development of information systems based upon such a model will provide greater stability and longevity than that of a diffused developmental approach lacking a coherent view of the underlying SFA activities. Analysis of interactions between the Business Process Architecture and organizational structure provides opportunities for integrated systems, but also emphasizes the requirements for control of privileged or restricted information.

Through such a high-level view of the SFA processes, cohesive functional areas are defined which organize SFA processes into logical groupings. Each functional area has a set of highly related functions and information, which give it certain autonomy from other areas. By prioritizing the areas' criticality to the SFA continued operation, modernization projects can be sequenced appropriately.

The Business Process Architecture ties future development efforts directly to the major functions and supporting information. The Business Process Architecture has modeled the SFA processes through the following components:

- Integrated SFA Process Model
- Level I Enterprise Conceptual Data Model—Subject Areas
- Level I Business Process Action Matrix
- Level I Process Flows
- Level II Enterprise Conceptual Data Model—Subject Areas
- Level II Business Subprocess Action Matrix
- Level II Subprocess Flows
- Subject areas mapped to the current SFA systems

B.1 Enterprise Conceptual Process Model

The integrated SFA process model is established as part of the modernized business process architecture for the SFA enterprise. The high-level process model identifies, integrates, and decomposes various functions, and processes, as shown in Figure IV.B-1.

Student Financial Aid Management (SFAM)

The main function of SFAM is to perform all SFA business activities. It is comprised of five functions, which are Student Services, School Services, Financial Partner Services, Performance Management, and Enterprise Services.

Student Services

The Student Services function performs primary interactions with students. It provides students with convenient access to aid application information, forms, and account data. It facilitates coordination of relationships with lenders, schools, guarantors, state agencies, and SFA under one student master account, providing a consolidated view for each student to facilitate his or her interaction with education service providers. It provides links to financial planning sites that help students understand their financial needs for postsecondary education. Student Services provides debt management counseling to students to help them understand the overall impact of their debt on their future financial goals after completing their school education. Student Services targets markets and under-served markets to increase awareness of financial aid availability among youth, providing easy access to user-friendly application forms, just-in-time disbursement of funds and an efficient repayment process. The function is comprised of three major processes: Aid Awareness, Aid Application, and Loan Repayment.

Aid Awareness

The Aid Awareness process is part of the Student Services function that identifies and educates potential program participants, including students and their families. It provides financial aid information and guidance to assist in the postsecondary school planning and decision making process. This process includes the management of special SFA initiatives and may include future co-branding or sponsorship opportunities designed to reach the target market through popular media. The Aid Awareness process is comprised of five major subprocesses: Target Markets, Develop Awareness Programs, Execute Awareness, Provide Access to Financial Simulation and Modeling, and Monitor Program Effectiveness.

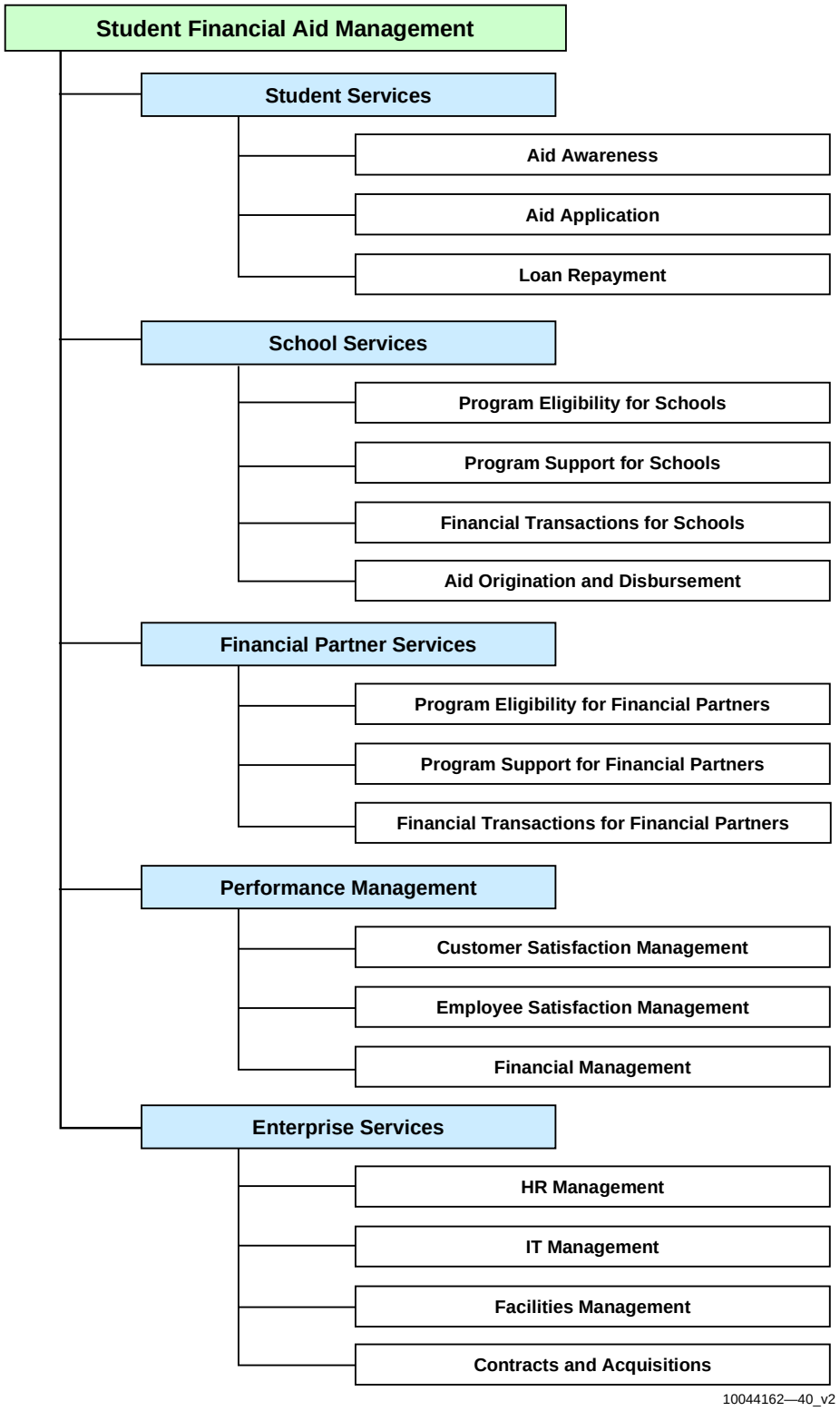

Figure IV.B-1. Integrated SFA Process Model

Aid Application

The Aid Application process is part of the Student Services function that collects, organizes, and verifies application information. It is responsible for the design of the physical application form and assists in the creation of aid packages for schools and students. It enables potential students to apply through the communication medium of their choice, including the Internet (such as FAFSA on the Web) or traditional mail channels. It calculates and reports the participant's Expected Family Contribution (EFC) to schools who put together aid packages. It reports decisions on the acceptance or rejection of aid packages back to SFA. The process is comprised of five subprocesses: Design and Distribution of Application Forms, Manage Aid Applications, Obtain Eligibility Assessment Information, Assess Participant Eligibility, and Manage Aid Package.

Loan Repayment

The Loan Repayment process is part of the Student Services function for Direct Loans, this process offers exit counseling, collects money from borrowers who have entered into repayment, provides invoices, processes loan consolidation requests, and attempts collection on defaulted loans. It provides students with different methods through which loans can be paid. As borrowers enter repayment, the process designs repayment options that best suit them and the overall impact of their debt. Repayment plan options, and bill cycle date selections and changes can be made on the Web. It automatically monitors loans and identifies defaulted loans. It chooses how to deal with defaults (from wage garnishment to collection agencies). The Loan Repayment process manages consolidation loan information and originates consolidation loans upon receipt of borrower requests. The process is comprised of eleven subprocesses, which are Manage Repayment Counseling, Select Repayment Option, Process Billing Information, Process Loan Payments and Overpayments, Manage Aid Status, Track Borrowers, Assign Defaulted Loans, Manage Debt Collection, Manage Consolidation Loan Information, Originate Consolidated Loan, and Make Payments to Lenders.

School Services

The School Services function is one of the Student Financial Aid Management functions that manage the relationship with schools from schools initial and subsequent program eligibility through training and performance review. The function evaluates schools based on their effectiveness in managing Federal funds and achieving performance-based outcomes as defined by SFA. It provides other services that include financial transaction processing, training/education and program/eligibility reviews. The School Services function is comprised of four processes: Program Eligibility for Schools, Program Support for Schools, Financial Transactions for Schools, and Aid Origination and Disbursement.

Program Eligibility for Schools

The Program Eligibility for Schools process is part of the School Services function that monitors eligibility requirements throughout a school's involvement with Title IV Aid programs. The process certifies schools for participation in Title IV programs, defines the scope of their participation, and discontinues eligibility, as needed. The Program Eligibility for Schools process is comprised of three subprocesses: Determine School Eligibility, Set Participation Parameters, and Discontinue Eligibility.

Program Support for Schools

The Program Support process is part of the School Services function that ensures that schools have the tools and assistance they need to effectively manage Title IV Aid programs. The process manages the relationship and exchange of information between SFA and Title IV schools. It provides training and technical support. It collects and maintains program information, which is then used to analyze school performance across a number of indicators, including financial, administrative and outcome-based measures. It also enables schools to access, manipulate and self-monitor their performance through the use of sophisticated technology tools that can reside on an aid administrator's desktop. The Program Support for Schools process is comprised of four subprocesses: Develop and Deliver Information, Training, and Technical Assistance; Maintain School and Program Information Status; Monitor School Performance; and Take Action on Performance.

Financial Transactions for Schools

The Financial Transactions for Schools process is part of School Services function that coordinates the execution of financial activities conducted at the school level versus the student level. It supports delivery of service to schools through the accurate, efficient processing of financial transactions. It performs necessary activities that include various adjustments, reimbursements, and closeout transactions needed to ensure SFA's integrated financial management system reflects accurate and complete financial data related to school programs. This process completes and tracks disbursement and reconciliation of funds to schools for Pell, Direct Loan and Campus-Based programs. The Financial Transactions for Schools process is comprised of three subprocesses: Allocate Funds and Allowances, Manage Authorizations, and Execute Financial Adjustments.

Aid Origination and Disbursement

The Aid Origination and Disbursement process is part of the School Services function that receives and checks the accuracy of data reported on the Common origination and disbursement record. It receives, stores, and distributes participant authorizations, authorizes payments to schools, and reconciles funds transmitted against disbursements and adjustments. Further, it tracks the enrollment status of all program

participants and forwards the information to lenders and guaranty agencies. The Aid Origination and Disbursement process is comprised of six subprocesses: Edit Common Records, Process Borrower Authorizations, Authorize Payments to Schools, Manage Lender Disbursement Information, Reconcile Drawdown, and Maintain Enrollment Status.

Financial Partner Services

The Financial Partners Services function is part of the Student Financial Aid Management function that supports lenders and guaranty agencies in their delivery of aid to students. It receives information from and provides information to aid organizations related to SFA programs and individual student participants. The activities performed by this function include training and education, eligibility processing, informational updates, financial transactions and program performance analysis and review. The Financial Partners Services function is comprised of three processes: Program Eligibility for Financial Partners, Program Support for Financial Partners, and Financial Transactions for Financial Partners.

Program Eligibility for Financial Partners

The Program Eligibility for Financial Partners process activates and deactivates eligibility for financial partners, namely lenders and guaranty agencies. It determines eligibility and manages state's applications for LEAPP (a Federal contributions program through the application receipt, processing, and decision-making process). The Program Eligibility for Financial Partners process is comprised of three subprocesses: Determine Financial Partner Eligibility, Manage State LEAPP Application, and Discontinue Financial Partner Eligibility.

Program Support for Financial Partners

The Program Support for Financial Partners process is part of the Financial Partner Services function that maintains and supports the financial partner in all aspects of the aid programs after a financial partner's eligibility has been determined. It provides technical assistance and guidance to institutions in program specifics and changes to program guidelines. It maintains and monitors performance data and reporting from the financial partners including information such as number and size of loans, and distribution of funds by school or region. The Program Support for Financial Partners process is comprised of five subprocesses: Develop and Deliver Information, Training, and Technical Assistance; Maintain Financial Partner Performance Data; Monitor Financial Partner Performance; Conduct Financial Partner Program Reviews; and Take Action on Performance.

Financial Transactions for Financial Partners

The Financial Transactions for Financial Partners process is part of the Financial Partner Services function that manages the flow of funds between financial partners and SFA. It makes payments to lenders and guaranty agencies that may include reimbursements and special allowances. Additionally, the process manages the authorization process for LEAPP funds, keeping track of contribution levels for each state after the state has been accepted to the LEAPP program. The Financial Transactions for Financial Partners process is comprised of three subprocesses: Make Payments to Lenders, Make Payments to Guaranty Agencies, and Manage State LEAPP Authorization.

Performance Management

The Performance Management function is part of the Student Financial Aid Management function that collects and analyzes performance information, which is used by management to assess how well SFA is performing as a PBO, and the prioritization of improvement projects. It also provides a tool-set to link SFA's vision, strategy objectives, and key performance measures. The Performance Management function is comprised of three processes: Customer Satisfaction Management, Employee Satisfaction Management, and Financial Management.

Customer Satisfaction Management

The Customer Satisfaction Management process is part of the Performance Management function that focuses on the systematic, structured collection of information about customer/partner preferences and satisfaction. It sets periodic performance goals and develops objectives for achieving customer/partner satisfaction. The process collects data from various sources and rigorously analyzes them to produce trends, gaps, etc., throughout the year. By using this information, the process identifies necessary changes to processes, performance objectives and technology. It closely monitors and reports of customer/partner satisfaction information, which determine how well PBO's objectives are met for improving customer satisfaction. It gauges success toward realizing the goals of the modernization blueprint. The Customer Satisfaction Management process is comprised of six subprocesses: Objective Setting and Planning, Customer/Partner Data Gathering, Customer/Partner Information Analysis, Action Planning, Decision Making, and Customer/Partner Satisfaction Performance Feedback and Reporting.

Employee Satisfaction Management

The Employee Satisfaction Management process is part of the Performance Management function that executes SFA's PBO initiatives by focusing on employees—building their capabilities, motivating them, and providing long term growth opportunities to attract and retain them. It also focuses on building

organizational capability through knowledge sharing. The Employee Satisfaction Management function is comprised of five subprocesses: Objective Setting and Planning, Employee Data Gathering, Employee Information Analysis, Action Planning and Decision-Making, and Feedback and Communication.

Financial Management

The Financial Management process is part of the Performance Management function that performs all the traditional accounting activities necessary to manage the flow of funds between students, SFA, schools, financial partners and other government agencies. The primary objective of this process is to define, establish and execute an integrated financial management system that manages the flow of financial information across all of SFA's information systems, in order to accomplish new PBO specific financial management process mandated by legislature. It produces reports that SFA management can use to monitor how well the SFA organization is performing relative to one of its three primary objectives: reducing the overall cost of student financial assistance. The Financial Management process is comprised of nine subprocesses: Core Financial System Management, General Ledger Management, Funds Management, Payment Management, Receipt Management, Cost Management, Financial Management Reporting, Loan Portfolio Management, and Budget Analysis and Development.

Enterprise Services

The Enterprise Services function is part of the Student Financial Aid Management function that primarily improves the way SFA manages its critical assets: people, technology, facilities, and its relationships with vendors. It performs Human Resources (HR) Management, Information Technologies (IT) Management, Facilities Management, and Contract and Acquisition Management across SFA's operation to provide a consolidated, channel-driven approach to support services. The function creates and delivers value for SFA and support processes in the business model by capitalizing on economies of scale, pooled expertise, reduced overhead, and program/system integration.

Human Resource Management

SFA is committed to building a strategic, best-in-business Human Resources capability that focuses on SFA's most important asset, its people. As a business enabler and strategic partner, Human Resources management will address SFA's critical people challenges:

- Aligning the organization and workforce with defined performance objectives
- Developing a workforce with the composition and competence required to perform

- Supporting the workforce's ongoing performance efforts
- Reinforcing the workforce's efforts and performance results

Ultimately, SFA Human Resources seeks to address its people challenges to improve the welfare, and morale of SFA employees, thereby contributing to a positive culture that promotes success and delivers results.

IT Management

The IT Management process is part of the Enterprise Services function that seeks to maximize returns on current and future investments in information technology. It enables SFA to prioritize investments, purchase the correct technology and operate and maintain its systems. In addition, the process ensures that SFA's systems have common standards, are secure, readily integrate and interface with channel partners, and keep pace with new technologies and technology requirements. It effectively improves efficiencies, reduces costs, and facilitates the easy access of information for SFA internal and external customers. The IT management process is comprised of ten subprocesses: IT Investment Management, IT Production and Maintenance, IT Systems Development Lifecycle IT Capacity Management and Performance Tuning, Systems Availability and Contingency Planning, Systems Security and Privacy, IT Standards and Methodology, IT Partner Interface Management, IT Configuration Management, and IT Quality Assurance.

Facilities Management

The Facilities Management process is part of the Enterprise Services function that coordinates the physical workplace ensuring that procedures are fixed and that mobile assets are inventoried, insured, and continually meet or exceed code. The process strives to improve the comfort, welfare, and morale of SFA employees and reduce SFA costs through decreases in fraud and waste while promoting an environmentally friendly workplace. The Facilities Management process is comprised of seven subprocesses: Equipment Investment, Leasing, and Disposal; Space Planning and Management; Safety and Security; Telecommunications; Asset and Inventory Management; Ongoing Facilities Maintenance; and Supervision of Business Services.

Contracts and Acquisition Management

The Contract and Acquisition Management process is part of the Enterprise Services function that identifies, selects, and manages external contractors who supply goods and services to SFA. It establishes partnerships with contractors and suppliers to provide high-value goods and services that can be used to supplement or substitute existing roles and capabilities critical to operating the business. Mainly, the function provides SFA access to public and private best practice and subject matter expertise in cost reduction and improved service levels for both internal and external customers. The Contract and Acquisition Management function is comprised of five subprocesses: Need Based Planning, Request for Proposal (RFP) Creation and Issue, Source Selection and Evaluation, Contract Management, and Policy Analysis and Innovation.

B.2 Level I SFA Enterprise Conceptual Data Model – Subject Areas

A subject area is a logical grouping of similar, related data that supports a business area. Subject areas are often depicted graphically in a data model. Subject areas may contain lower-level subject areas that further group similar data. During analysis, subject areas are refined to show the entity types (data structures) that store specific types of data. An entity type is a person, place, thing, concept or event that the enterprise has interests in. Entity types are identified at the lowest level subject area of the Levels III and IV architecture.

Level I of the architecture contains 10 high-level conceptual subject areas required to support the SFA enterprise. Figure IV.B-2 shows a high-level conceptual data model of these subject areas (indicated by the shaded boxes) and relationships between the subject areas (indicated by a line between two shaded boxes). In this high level, conceptual model, a relationship line indicates that one or more entity types within one subject area relate to one or more entity types within another.

The Level I subject areas are described below. These subject areas conceptually contain standardized data objects, lower-level subject areas, entity types, characteristics of the entity type, and relationships used in support of SFA business processes. Standardized data is generalized to meet the needs of the enterprise.

1. **Student Services.** This subject area includes standardized data objects that support aid applications, aid awards, and loan repayments.
2. **School Services.** This subject area includes standardized data objects for school eligibility services, school program support services, and aid origination and disbursement.
3. **Financial Partner Services.** This subject area includes standardized data objects that are used to provide eligibility and program support services to financial partners.
4. **Enterprise Performance Data.** This subject area includes standardized data objects that support the collection and analysis of customer satisfaction data, employee satisfaction data, and performance metrics on key SFA business processes.
5. **Enterprise Services.** This subject area includes standardized data objects pertaining to human resources, information technology services, facilities, contracts, and acquisitions.
6. **Participants.** This subject area includes standardized data objects on members of the public who have expressed an interest in participating in an SFA program. Examples include applicants, borrowers, potential students, students, and parents.

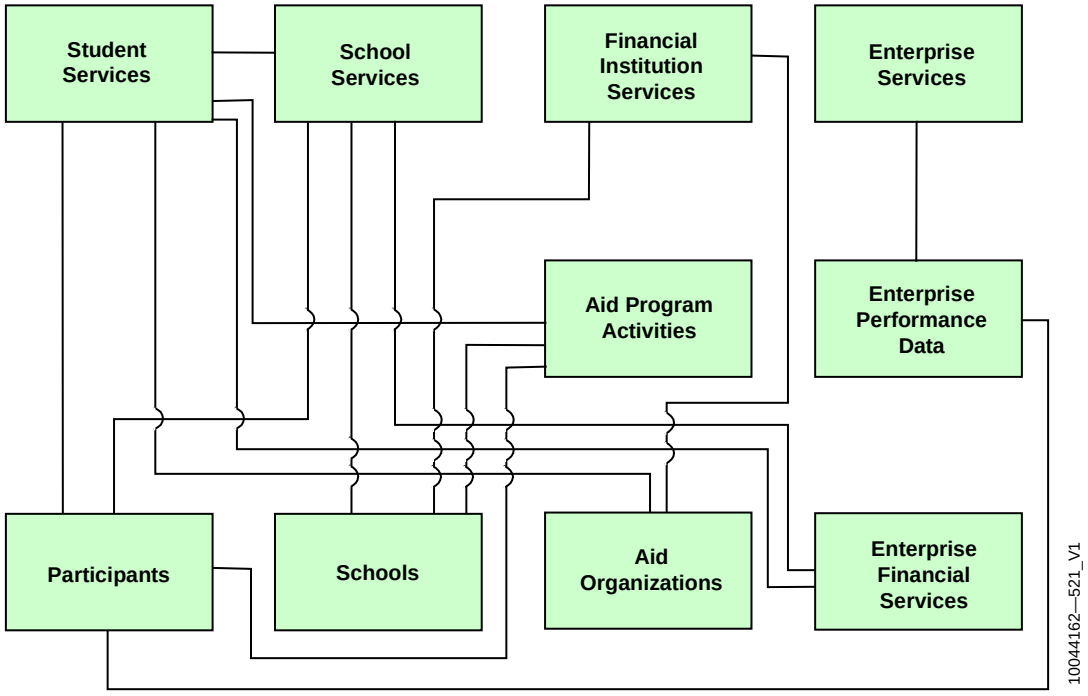

Figure IV.B-2. SFA Enterprise Conceptual Data Model (Level I)

7. **Schools.** This subject area includes standardized data objects about educational and vocational institutions that have expressed an interest in or have participated in an SFA program. For example, it includes information on school characteristics (e.g., school calendar, FISAP data, open/closed status) and school ownership.

8. **Aid Organizations.** This subject area includes standardized data objects about organizations that are related to the delivery of student financial aid, including lenders, guaranty agencies, collection agencies, and other government agencies such as IRS and DOJ.

9. **Aid Program Activities.** This subject area includes standardized data objects that support aid awareness services and the development of aid programs.

10. **Enterprise Financial Services.** This subject area includes standardized data objects about various financial activities that include managing the flow of funds between students, SFA, schools, financial partners and other government agencies, managing consumer loans, and financial management reporting.

B.3 Level I SFA Business Process Action Matrix

The SFA business process actions explain interaction between business processes that record what the SFA business does, and subject areas that describe the things of interest to the business and the relationships between them. Figure IV-B.3 indicates the impact of processes on related data in various subject areas. High-level subject areas are displayed down the side (labeling the rows); high-level processes are shown across the top (labeling the columns). The intersection of a process and a subject area indicates that a process has some impact on the data contained in the subject area. There are four possible impacts a process can have on data: the process can cause some information to be created, read (to provide needed information to the process), updated, or deleted. Thus,

- A "C" indicates the process could cause some new information in that subject area to be created (recorded for the first time).
- An "R" indicates the process may need information from that subject area to complete an action.
- A "U" indicates the process could cause some existing information in that subject area to be updated (changes to existing data).
- A "D" indicates the process could cause some information in that subject area to be deleted.

	Student Services	School Services	Financial Partner Services	Performance Management	Enterprise Services
Student Services	C, R, U, D			R	
School Services	R,U	C, R, U, D		R	
Financial Partner Services	R, U		C, R, U, D	R	
Enterprise Performance Data				C, R, U, D	R
Enterprise Services				R, U	C, R, U, D
Participants	C, R, U, D				
Schools	R, U	C, R, U, D			
Aid Organizations	R		C, R, U, D		
Aid Program Activities	C, R, U, D	R	R		
Enterprise Financial Services	C, R, U, D	C, R, U, D	C, R, U, D	C, R, U, D	C, R, U, D

Figure IV.B-3. SFA Business Process Action Matrix (Level I)

B.4 Level I Process Flows

The modernized SFAM information architecture establishes various internal and external business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data for all process activities. The business process flows at Level I establish SFA business interactions and their relationships with external agents, such as aid organizations, schools, and students. The business interactions do not necessarily translate into physical interfaces in the technical architecture but only depict the logical processing flow among the processes from a business perspective at the Level I architecture.

In all cases, the process flows depicted have been derived from the business requirements stated in Chapter III. As the business requirements are refined, the process flows will reflect this in subsequent releases.

Student Services

Aid Awareness Process Flow

The process flow illustrated in Figure IV.B-4 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Aid Awareness process. Targets Markets through analysis of data received from students, families, and schools. For each market, SFA develops Awareness Programs and tailors its message to the requirements of each segment. SFA then executes Awareness Programs. Execution involves input from schools and lenders as partners in distributing SFA's message, and reaches out to students and their families either directly or through intermediaries. Aid Awareness provides access to financial simulation and modeling both through its Web site (for students and families with Web access) and via telephone for students and families without Web access. For all subprocesses in the process, Aid Awareness Monitors Program Effectiveness both directly through measurement of key performance criteria and through feedback from students, schools, and lenders.

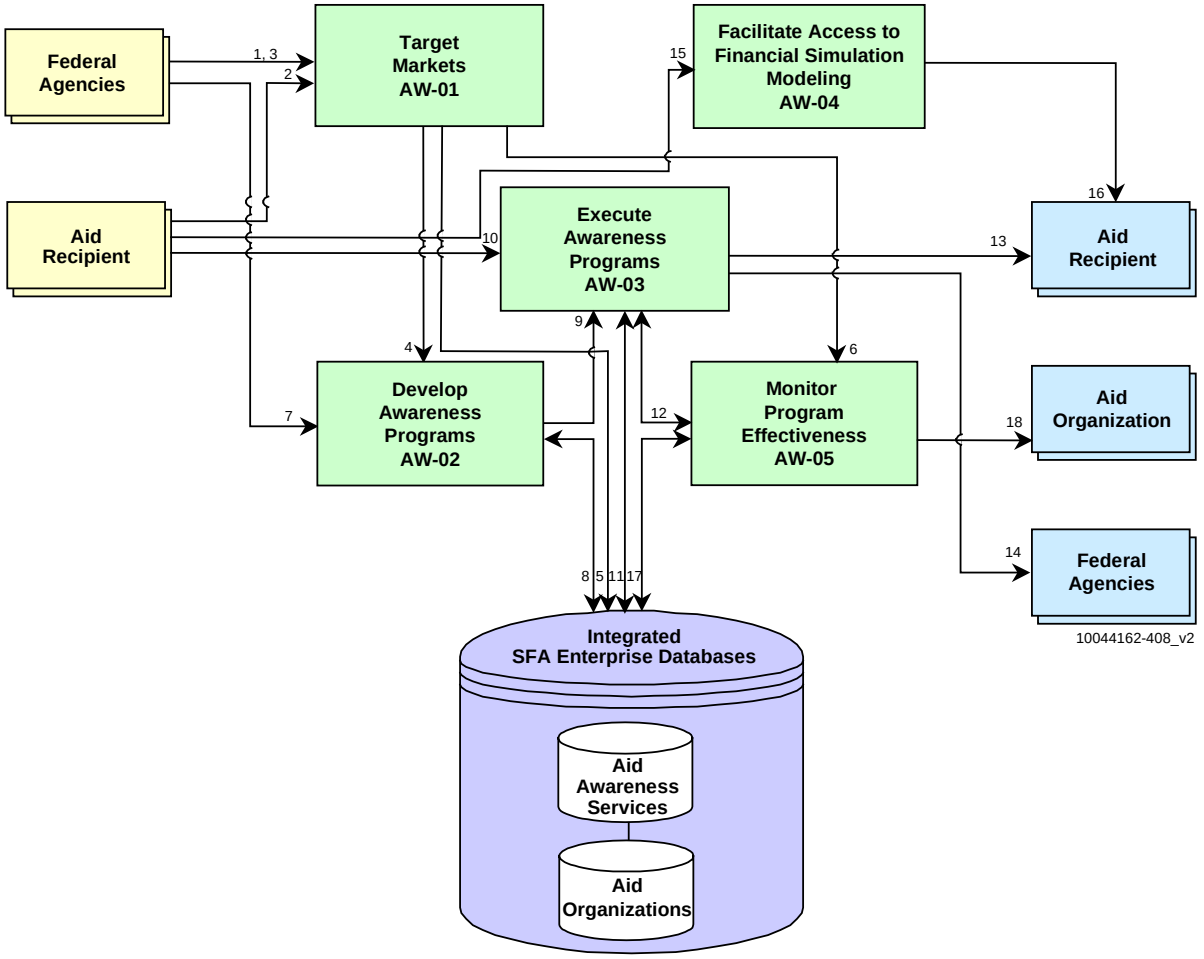

Figure IV.B-4. Aid Awareness Process Flow (1 of 2)

01 Grant reports and commissioned survey data
02 Aid survey data
03 Census data
04 Details about each segment of the markets
05 Target market profile, AID products
06 Application data and performance data
07 Aid programs, policies, regulations, and performance matrix
08 Aid Awareness performance data and program data
09 Awareness programs
10 Aid Awareness program details
11 Aid Awareness data
12 Awareness program details
13 Aid Awareness information and tools through mail, fax, electronic media, Web sites, video/TV, conferences/teleconferences, etc.
14 Products and publications media relations
15 Long term debt management plan
16 Long term debt management plan, and simulations of possible financial aid packages and financial options
17 Program effectiveness data
18 Program effectiveness details

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Figure IV.B-4. Aid Awareness Process Flow (2 of 2)

Aid Application Process Flow

The process flow illustrated in Figure IV.B-5 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Aid Application process. The first step in the Aid Application Process is the efficient collection of information through the Design and Distribution of Application Forms. SFA is committed to designing and providing access to forms across a variety of distribution channels. As this information comes back, SFA will provide an organized single point of contact through which this information can be accessed in Manage Application. SFA will serve as a central administrator in obtaining Eligibility Assessment Information for the student's Aid Application needs, performing a range of duties, from holding student authorizations for access to classified information, to generating promissory notes from a lender of the student's choice. Once SFA has all the necessary information to Assess Participant Eligibility, SFA will calculate the Estimated Family Contribution (EFC) for the potential student. This eligibility determination is made available to schools that the student specifies, other grant agencies, and federal aid organizations. Finally, in Manage Aid Package, SFA supports the school's creation of the aid package by providing information to both schools and students.

Loan Repayment Process Flow

The process flow illustrated in Figure IV.B-6 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Loan Repayment process. The Loan Repayment process initiates the repayment option based on debt counseling activities. This option selection then drives processing of billing information and actual processing of payments for Direct Loans and Overpayments. The output of these steps will be used to update and manage status. The standard loan repayment process will often trigger debt (Debt Collection and Direct Loan Consolidation) collection, or loan consolidation activities. These are in effect, exception processes to the loan repayment process flow.

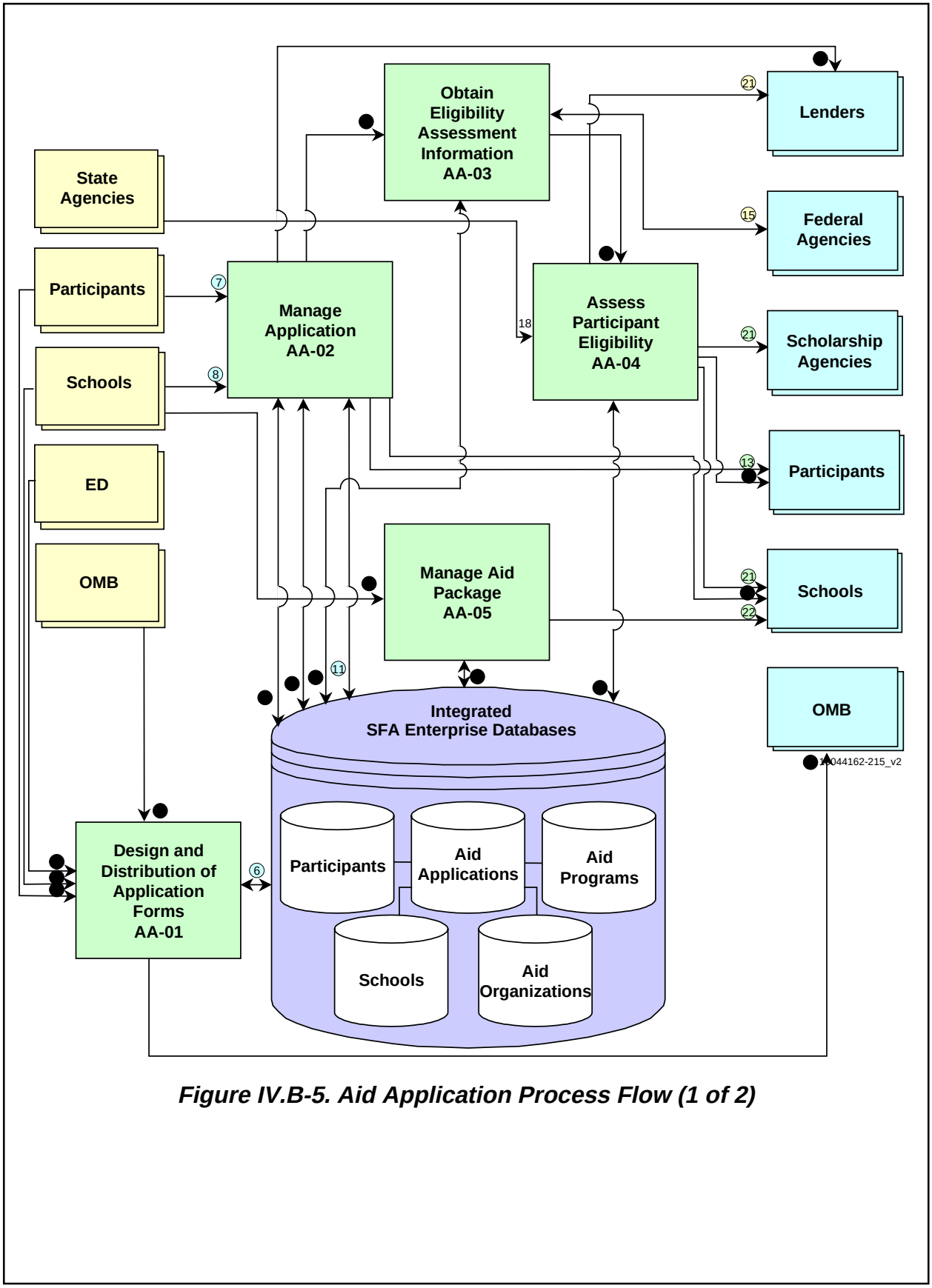

Figure IV.B-5. Aid Application Process Flow (1 of 2)

01 User suggestions
02 Policy changes
03 ED change requests
04 OMB change requests
05 Approval details
06 Electronic forms
07 Application data, parental data and signature, FAFSA/corrections/renewal on Web, paper renewals and corrections, master promissory notes for Plus and Stafford loans, Ed Express applications/corrections
08 The Financial Aid package
09 PIN information to account holder and PIN authentication to OSFA systems and SAM
10 Aid application data, loan computations, SSA authentication, new application record for renewal applications, promissory note
11 PIN authentication
12 Aid application
13 Lender list, promissory note, prior year aid application, financial aid process
14 Notification of FFELP request, promissory notes
15 Student record and request for information; annotated student record in response to request
16 Student record comparisons
17 Eligibility information details
18 Aid award and funding information
19 Eligibility determination
20 Student aid report
21 Eligibility determination results
22 Row aid award information
23 Aid award details

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Figure IV.B-5. Aid Application Process Flow (2 of 2)

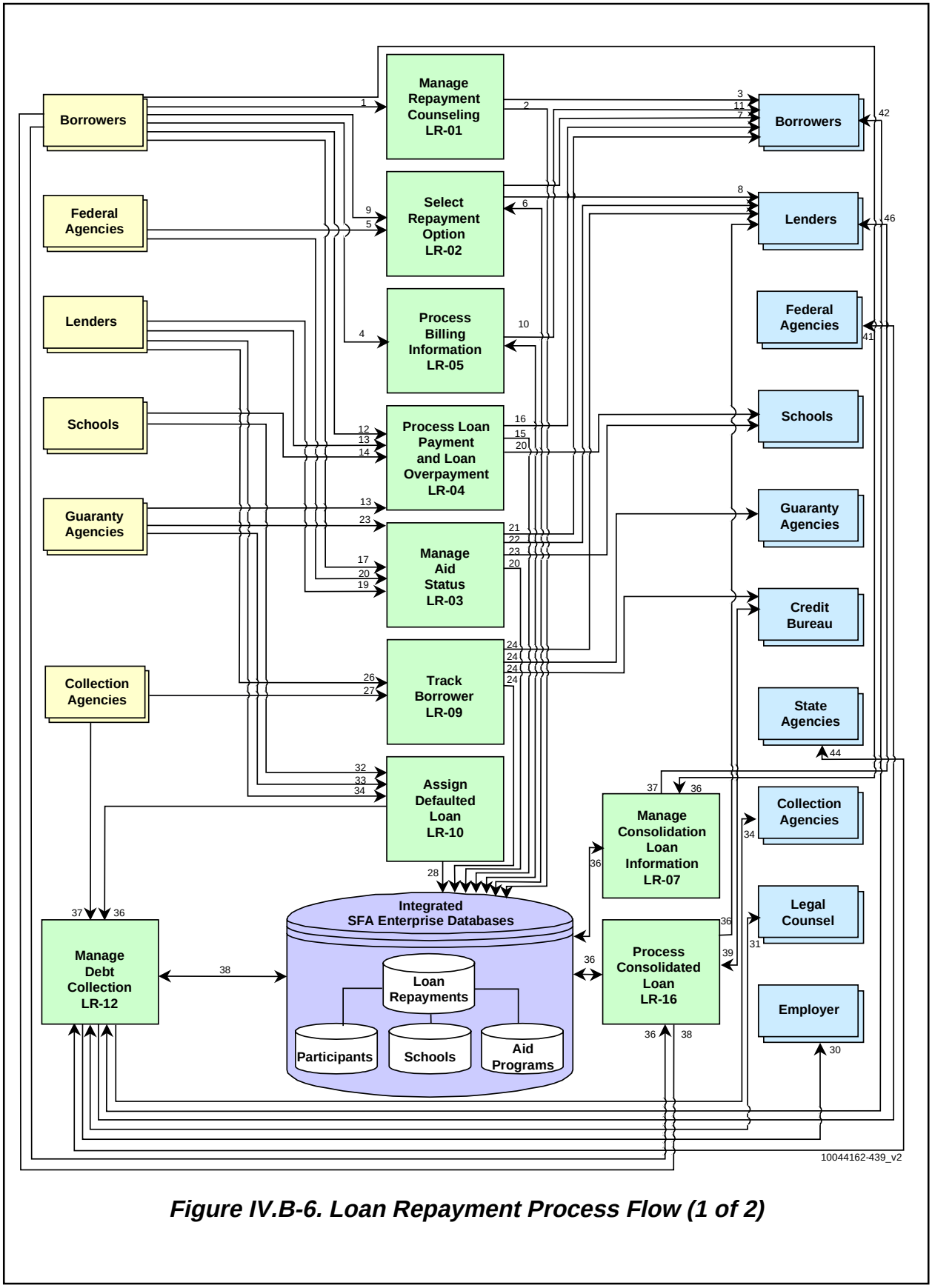

Figure IV.B-6. Loan Repayment Process Flow (1 of 2)

01 Repayment option and amount of outstanding debt
02 Repayment terms and conditions
03 Repayment counseling details
04 Repayment option selections
05 Income verification
06 Debt collection recalculations, loan details
07 Borrower details
08 Debt advice
09 Change requests to billing date
10 Payment/agreement details
11 Financial statements
12 Loan payment
13 Loan balance details
14 Loan/grant balance details
15 Post payments
16 Refunds, tax forms
17 Enrollment status change requests
18 Deferment/and or forbearance notification, lender service changes
19 Active military status/unemployment status
20 Loan aid status updates, deferment qualification, loan discharges, reinstatements
21 Deferment/default status details
22 Deferment and/or forbearance loan holders details
23 Default details
24 Borrower details
25 Defaulted loan and grant details
26 Defaulted loan (FFELP) details
27 Defaulted loan (FISL) details
28 Collection details
29 Loan collection recommendations
30 Wage collection details
31 Delinquent loan referral details
32 Employment/income/refund details
33 Default notification details
34 Debt details
35 Income refund details
36 Loan consolidation details
37 Loan consolidation and eligibility details
38 Loan verification details
39 Credit check details

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Figure IV.B-6. Loan Repayment Process Flow (2 of 2)

School Services

Program Eligibility for Schools Process Flow

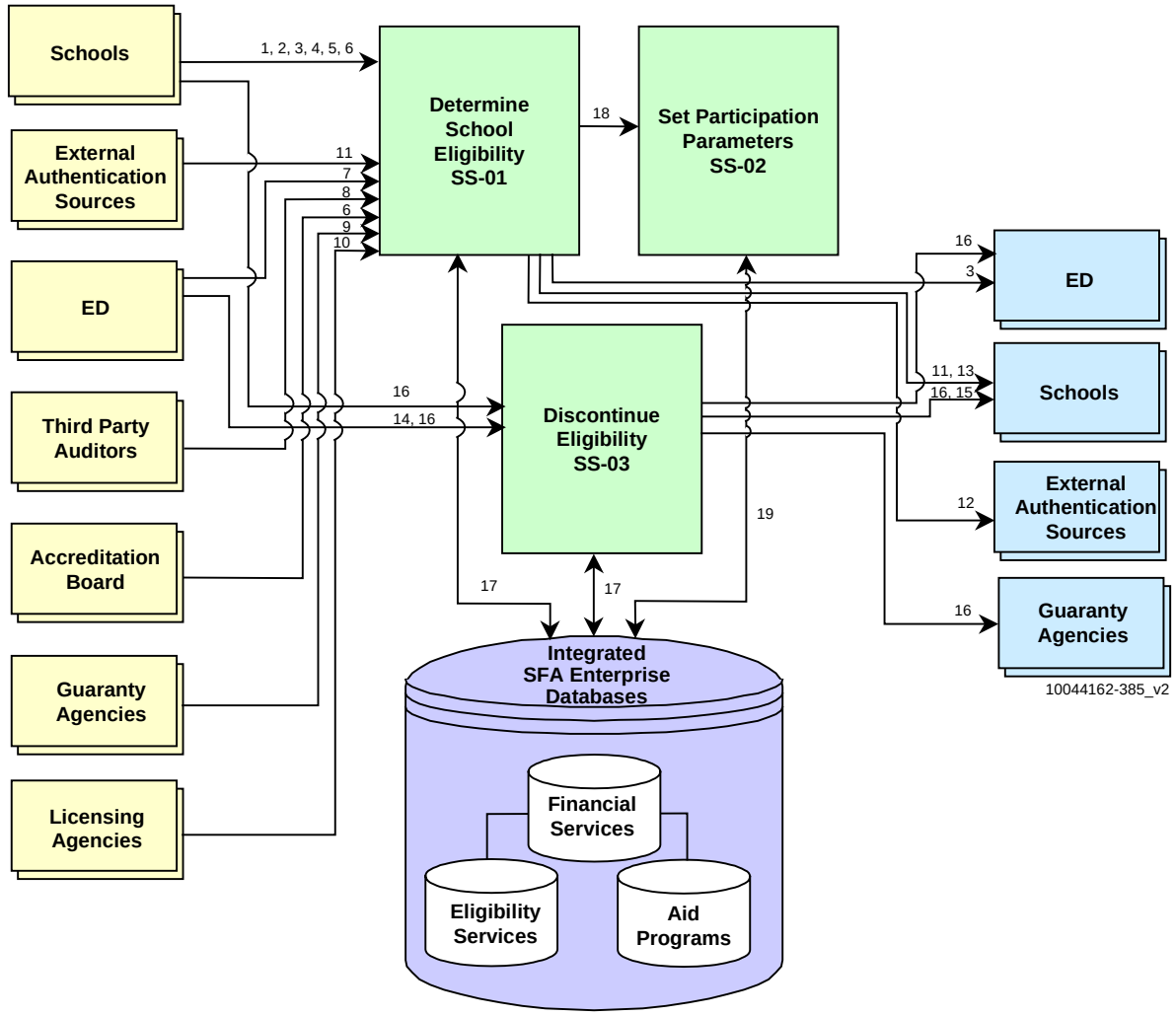
The process flow illustrated in Figure IV.B-7 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Program Eligibility for Schools process. The majority of analysis is conducted in Determine School Eligibility where information is collected from a number of sources to complete certification or re-certification of a school. Set Participation Parameters receives inputs from Determine School Eligibility and Guaranty Agencies to determine specific participation levels for the school. If SFA decides that a school may no longer participate in Title IV programs, Discontinue Eligibility is triggered and executes the appropriate administrative procedures and financial transactions. This step may also be triggered directly by the school due to school closure or other voluntary action. Discontinue Eligibility notifies schools, students and Guaranty Agencies of the discontinuance and associated stop payments on funds.

Aid Origination and Disbursement Process Flow

The process flow illustrated in Figure IV.B-8 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Aid Origination and Disbursement process. Aid Origination and Disbursement records received by SFA are edit checked. Then authorizations from the student are processed and disbursements are authorized. Finally, reconciliation is performed and enrollment status is maintained.

Program Support for Schools Process Flow

The process flow illustrated in Figure IV.B-9 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Program Support for Schools process. The majority of training and guidance support efforts (Develop and Deliver Information, Training and Technical Assistance) will be provided directly to schools in the form of technical assistance, regulatory interpretation and coordination of planning efforts. These activities will feed the collection and maintenance of data internal and external to SFA (Maintain School and Program Information and Status). This information drives the monitoring of school performance (Monitor School Performance) which interfaces with schools, guaranty agencies and other governmental organizations. Monitor School Performance



01	School application for eligibility or recertification	11	PIN/OPE ID
02	Signed PPAs	12	Approval/disapproval of eligibility
03	Change of ownership	13	Program acceptance package
04	Signed letters of credit	14	Order to discontinue eligibility
05	School certification application data	15	Start/stop payment order
06	Accreditation Information	16	School participation status
07	Request for letters of credit	17	Eligibility details
08	3rd party audit information	18	School parameter details
09	Review of school/school audit data	19	Participation details
10	Licensing information		

Figure IV.B-7. Program Eligibility for Schools Process Flow

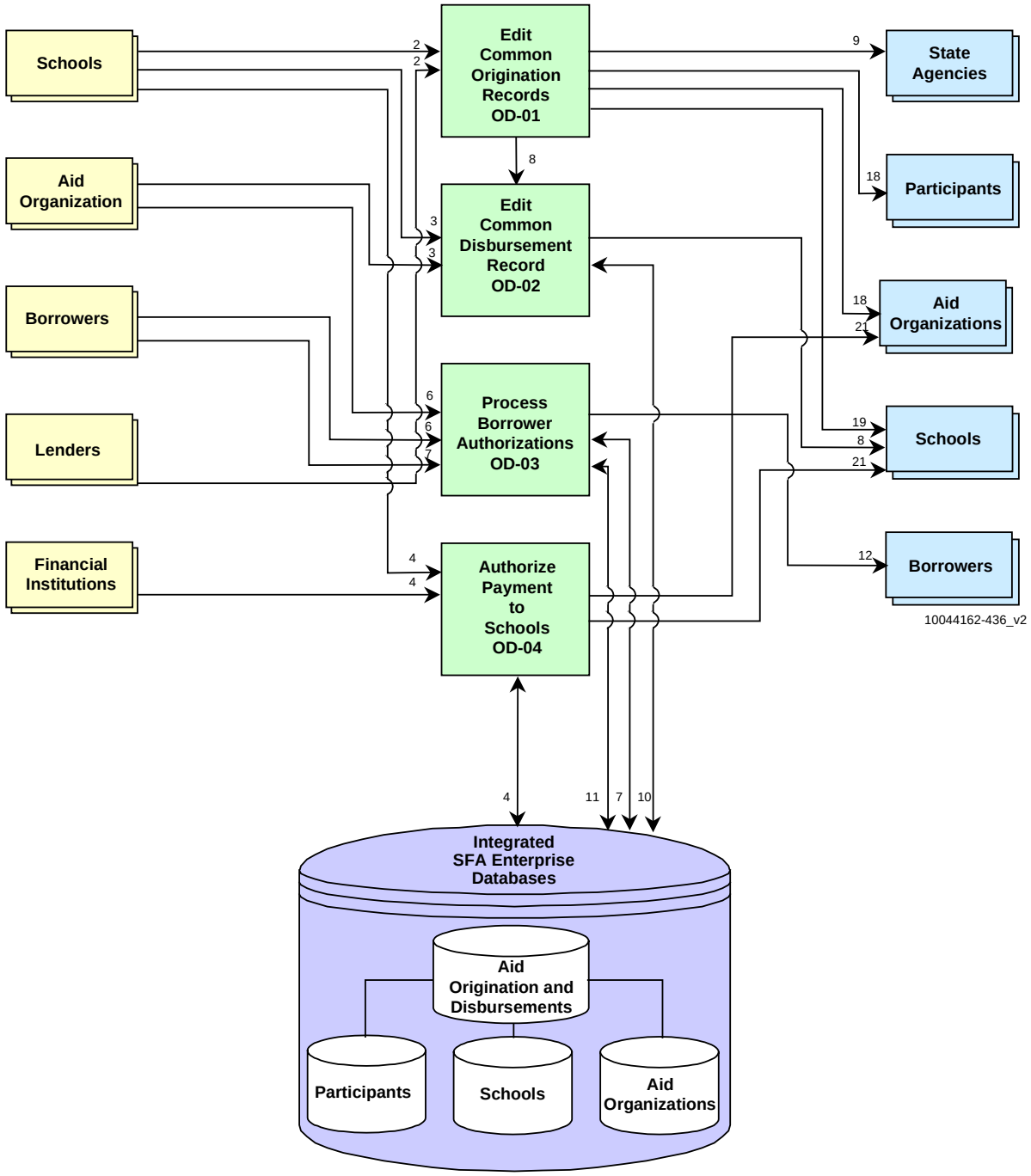


Figure IV.B-8. Aid Origination and Disbursement Process Flow (1 of 3)

This figure does not reflect changes based upon the Common Origination and Disbursement Process

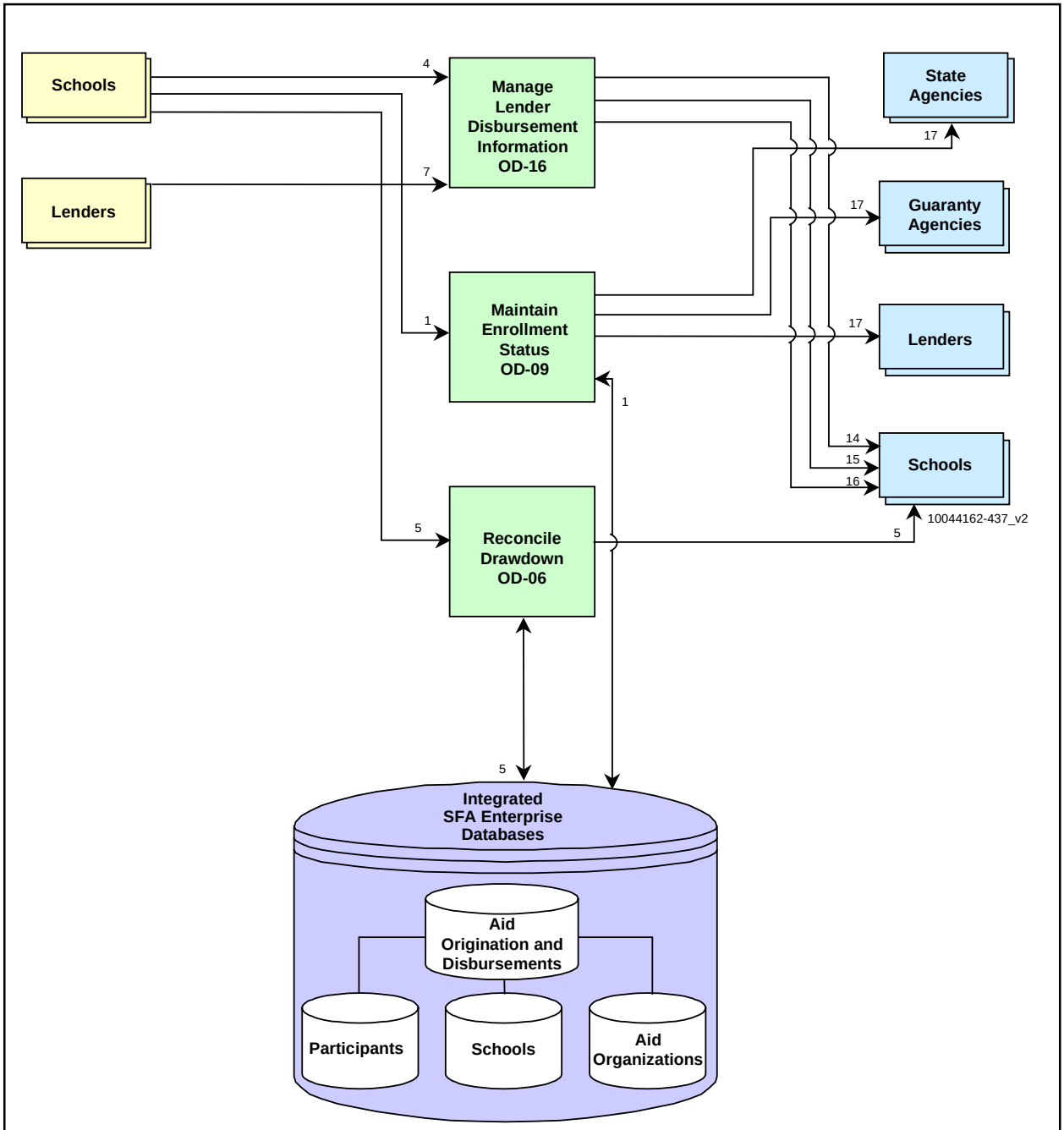


Figure IV.B-8. Aid Origination and Disbursement Process Flow (2 of 3)

This figure does not reflect changes based upon the Common Origination and Disbursement Process

01	Enrollment data
02	Disbursement adjustments and cancellation data
03	Disbursement records
04	Origination and disbursement records
05	Drawdown details
06	Long term debt management
07	Borrower authorization
08	Edited disbursement records
09	Transmitting organization records
10	Updated disbursement record
11	Long term debt planning
12	Debt management plan
13	Fund disbursement data
14	Notification for fund disbursement authorization
15	Edited origination and disbursement
16	Student disbursement rosters
17	Enrollment status
18	Edited results
19	Credit check
20	Data for ACH organizations
21	Schedule payment details

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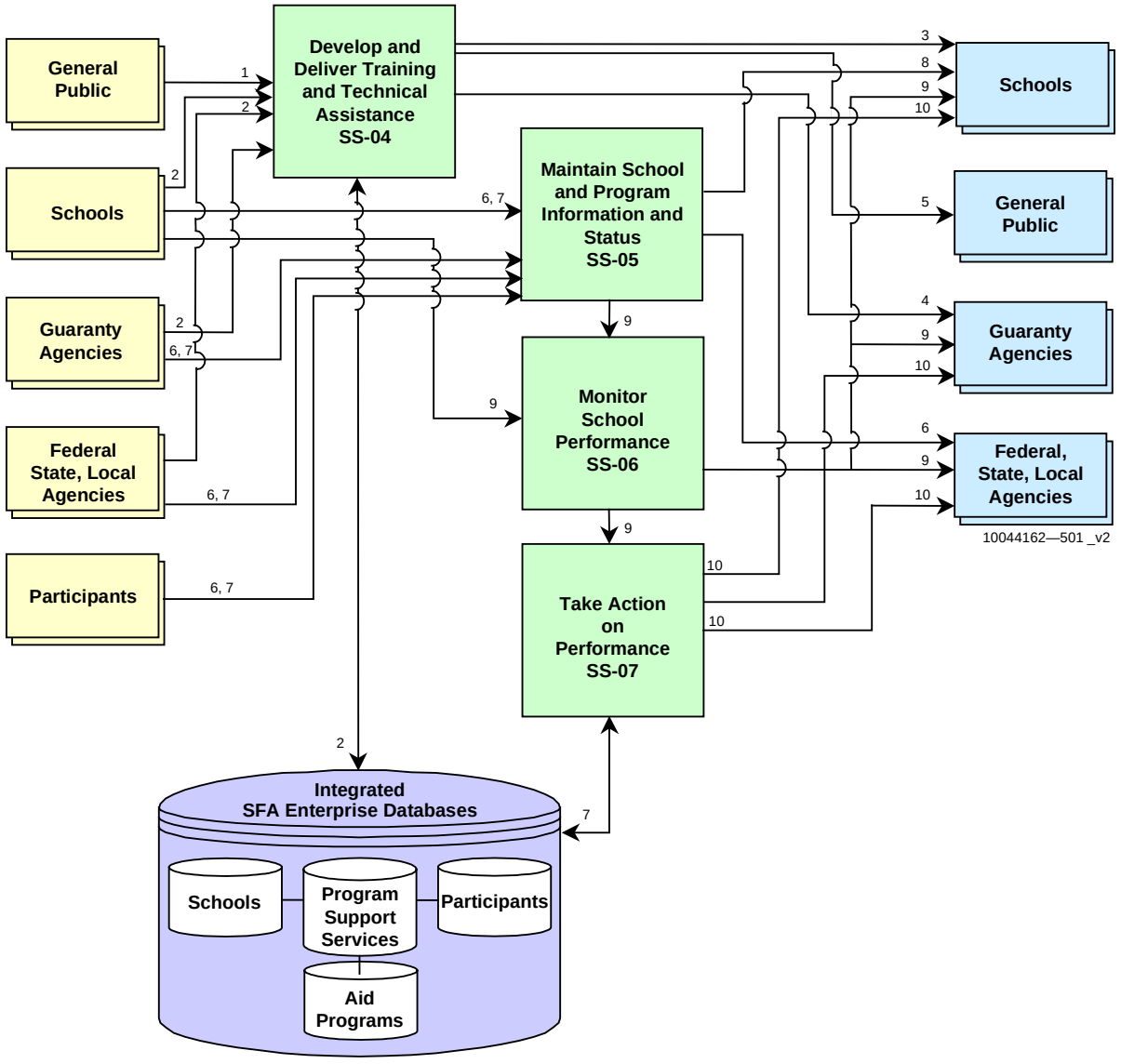
Figure IV.B-8. Aid Origination and Disbursement Process Flow (3 of 3)

This figure does not reflect changes based upon the Common Origination and Disbursement Process



01 School performance details request
02 Service delivery details
03 Training programs
04 Service delivery action plans
05 School performance report
06 FISAD details
07 School closure details
08 School directing
09 School performance details
10 Performance actions

Figure IV.B-9. Program Support for Schools Process Flow

also provides performance analysis information back to students as needed. The final step in the Program Support process is to Take Action on Performance. Actions typically have a direct impact on schools but may require exchange of information and decisions with guarantors and other agencies as depicted by the flow.

Financial Transactions for Schools Process Flow

The process flow illustrated in Figure IV.B-10 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Financial Transaction for School process. The flow diagram describes the major steps that comprise Financial Transactions. Allocate Funds and Allowances determines the appropriate allocation level and supports disbursement of funds to schools for all Campus-Based programs. Manage Authorizations executes similar activities to set and track authorization levels for Pell Grant funding. These steps feed the Execute Financial Adjustments step, which manages cancellations, reimbursements, annual accounting closeouts and other adjustments to reconcile accounts for Pell and Campus-Based programs.

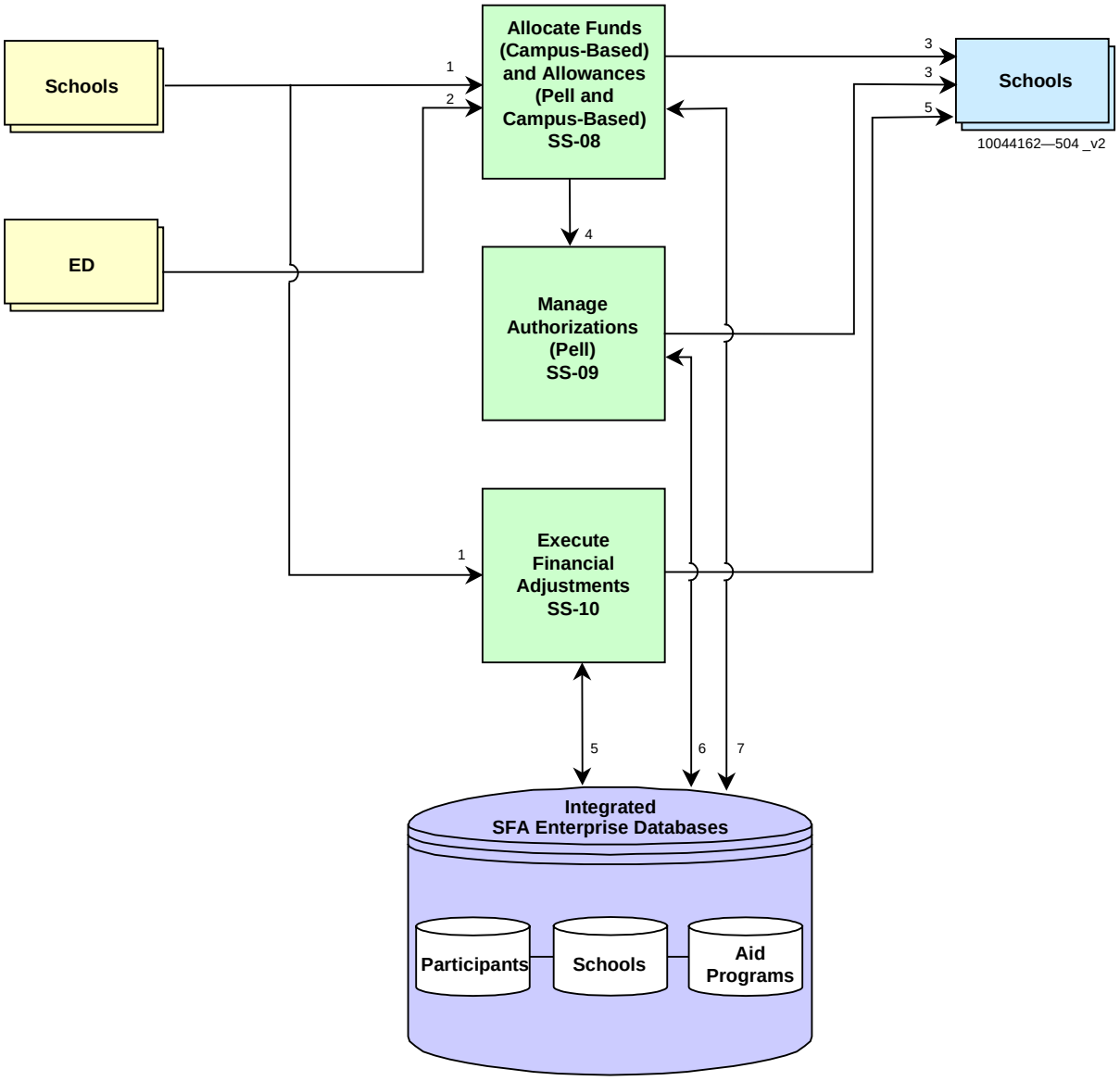
Financial Partners

Program Eligibility for Financial Partners Process Flow

The process flow illustrated in Figure IV.B-11 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Program Eligibility for Financial Partners process. SFA receives information and qualifications from Lenders and Guaranty agencies that initiate the eligibility process. This data is used to Determine Financial Partner Eligibility. The Second Subprocess Manage State LEAPP Applications manages the applications for LEAPP funds. Finally, SFA may Discontinue Financial Partner Eligibility in the event that a lender's request to leave the program is received by SFA, or if adverse reporting data regarding a lender's financial wherewithal is received. Discontinuance decisions are communicated both to the lender and to other Government agencies.

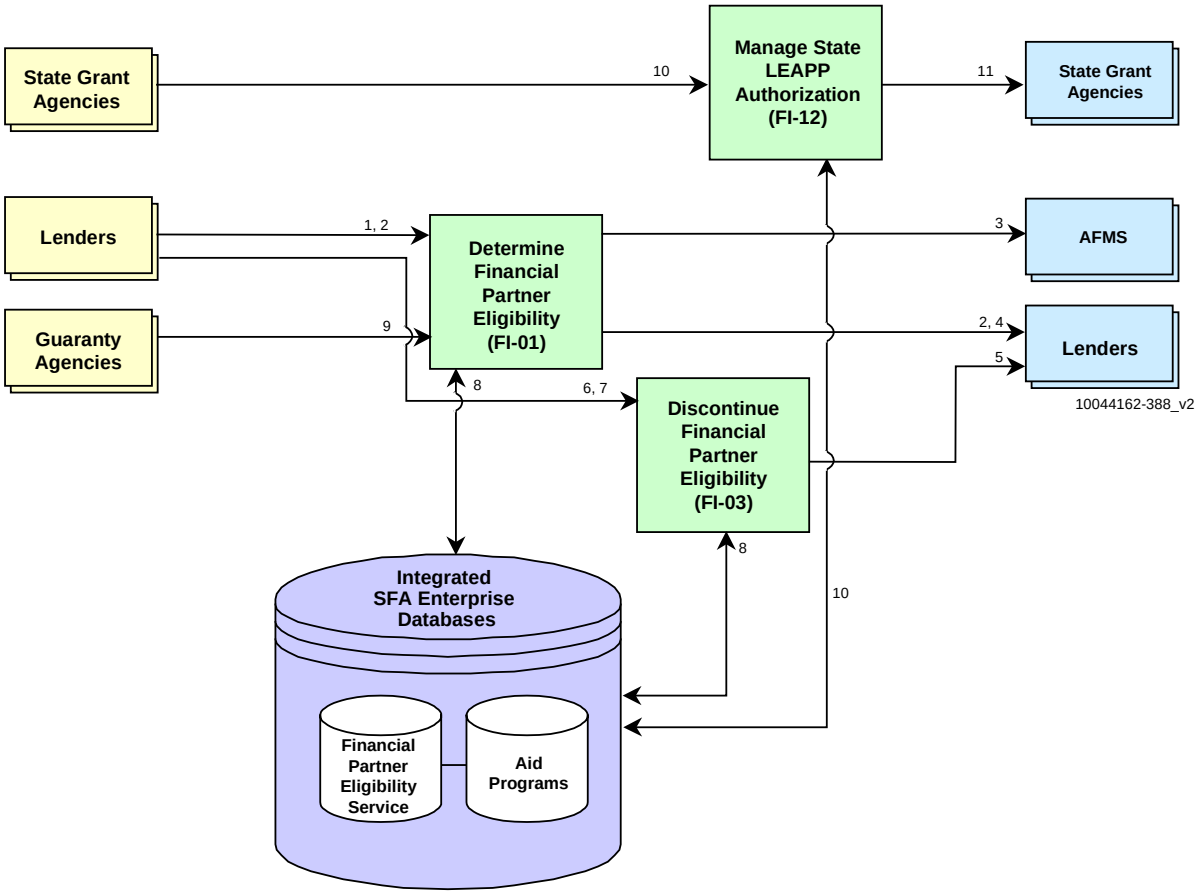
Program Support for Financial Partners Process Flow

The process flow illustrated in Figure IV.B-12 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Program Support for Financial Partners process. Information and advice in Provide Technical Assistance and Guidance flow from SFA to lenders and Guaranty Agencies. Maintain Financial Partner Performance Data receives and stores data from lenders, guaranty agencies, and other Government Agencies. This



01 Drawdown requests, Perkins loan cancellations
02 Low-income school information details
03 Notification details
04 Drawdown details
05 Financial statements
06 Loan authorizations
07 Fund and allowance details

Figure IV.B-10. Financial Transactions for School Process Flow



01 Title IV programs application
02 Lender Participation Questionnaire (LPQs) details
03 Notification details
04 Eligibility notices on confirmations
05 Deactivation details
06 Claims information
07 Voluntary discontinuance details
08 Institution status update/retrieval
09 Approved lender applications
10 LEAPP performance reports
11 LEAPP application levels

Figure IV.B-11. Program Eligibility for Financial Partners Process Flow

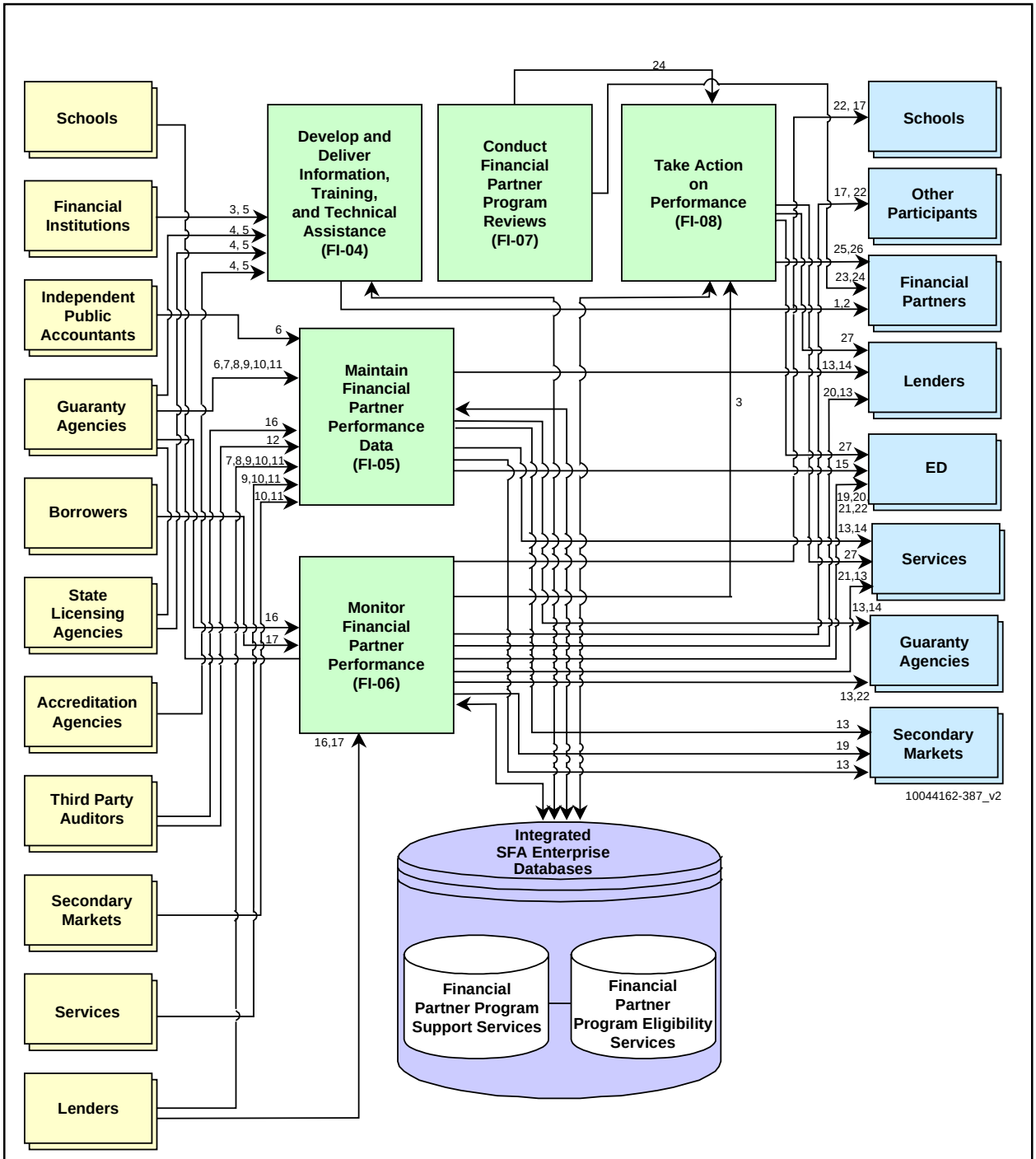


Figure IV.B-12. Program Support for Financial Partners Process Flow (1 of 2)

01 Training on content of Title IV programs, regulations, offerings, and aid levels
02 Technical assistance, quality assurance, training, and tools
03 Financial Partner profile
04 External review/audit data of financial partners
05 Survey data and feedback from focus groups, phone statistics, etc.
06 Lender Audit reports
07 Review data
08 Reporting form data
09 ED's review and audit data
10 Profiles
11 Appeals of ED program reviews and appeals of calculated default rates
12 Quality Control process review
13 Financial program and oversight data
14 Audit and review appeal status
15 Organizational program review and audit data
16 Request to access transaction histories
17 Feedback on services offered by financial partners
18 Transaction histories
19 Secondary Market default rate
20 Lender default rate
21 Services default rate
22 Request for feedback on Financial Partners Services
23 Prenotififcation of program reviews
24 Program reviews
25 Program determination letters
26 Fines for noncompliance
27 Notice of limitation on participation or discontinuance of participation

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Figure IV.B-12. Program Support for Financial Partners Process Flow (2 of 2)

information is then used to Monitor Financial Partner Performance. The results are provided to students and lenders. The Financial Partner Program Reviews process reviews programs with Guaranty Agencies and Lenders. Given the results of program reviews, SFA may Take Action on Performance and communicate the results to lenders or guaranty agencies.

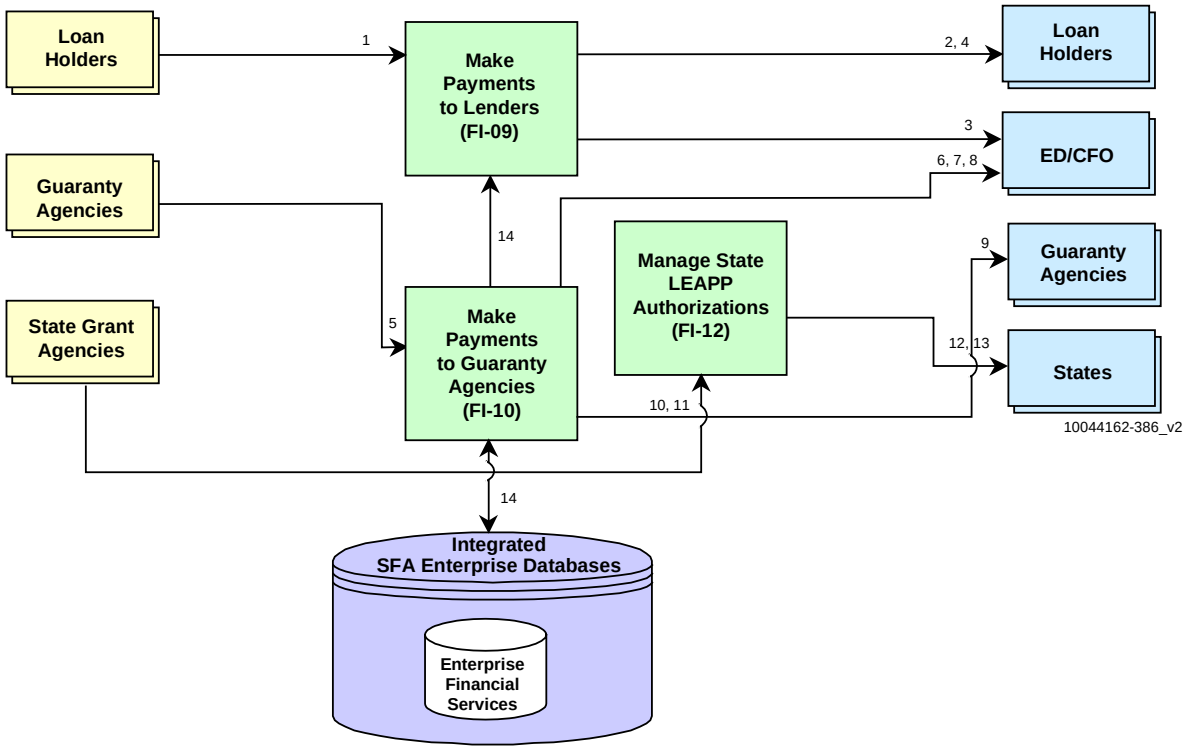
Financial Transactions for Financial Partners Process Flow

The process flow illustrated in Figure IV.B-13 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Financial Transactions for Financial Partners process. Make Payments to Lenders transfers funds or makes offsets to lenders to account for special allowances, interest claims, and payoffs for Direct Loan Consolidations. The same is true for the other subprocess, Make Payments to Guaranty Agencies, except with the flow being to Guaranty Agencies. This process also Manages State LEAPP Applications. This subprocess receives and distributes application data from states and other Government Agencies, then in Manage State LEAPP Authorization makes and communicates a decision to the same parties.

Performance Management

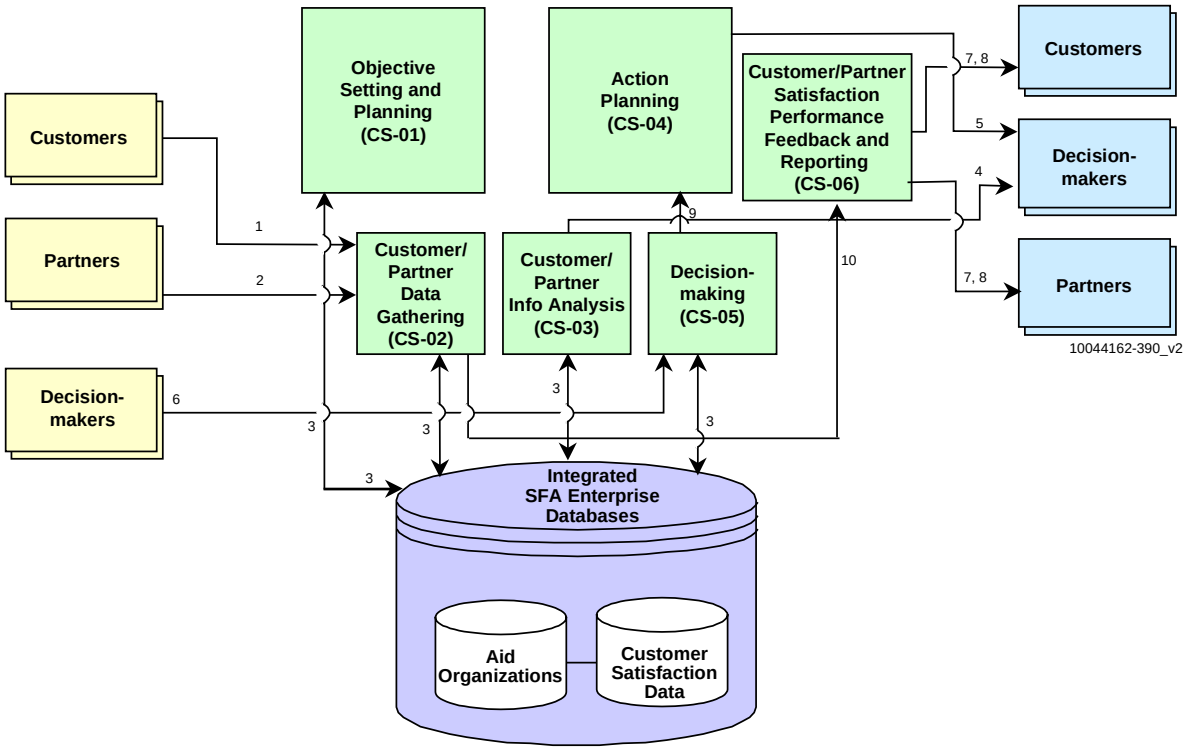
Customer Satisfaction Management Process Flow

The process flow illustrated in Figure IV.B-14 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Customer Satisfaction Management process. The Set Objectives and Plans subprocess sets periodic performance goals and develops objectives for achieving customer/partner satisfaction. Throughout the year, The Gather Customer/Partner Data subprocess collects data from various sources. The Analyze Customer/Partner Information subprocess rigorously analyzes to produce trends, gaps, etc. Plan of Actions, and Make Decisions subprocesses use this information to identify necessary changes to processes, performance objectives and technology. The Report Customer/Partner Satisfaction Performance subprocess closely monitors and reports of customer/partner satisfaction information to determine how well it is meeting the PBO's objective of improving customer satisfaction. It will also allow SFA to gauge success toward realizing the goals of the modernization blueprint.



01 Loan holder interest and special allowance invoices
02 Approval/rejection notices for interest and special allowance invoices
03 Loan holder interest and special allowance authorizations
04 Payoffs for direct loan consolidations
05 Payment requests for maintenance fees
06 Payment requests for processing fees
07 Reinsurance claims
08 Payment request for reinsurance claims
09 Approval/rejection of reinsurance claims
10 Report on disbursement of LEAPP funds
11 Profile information
12 Notification of LEAPP authorization amounts
13 State LEAPP ACH payment request
14 Financial transaction details

Figure IV.B-13. Financial Transactions for Financial Partners Process Flow



01 Customer survey data
02 Partner survey data
03 Log customer/partner survey data
04 Customer/partner satisfaction/dissatisfaction data
05 Recommendations
06 Feedback about each business case
07 Reports
08 Honors/awards
09 Decision
10 Customer feedback

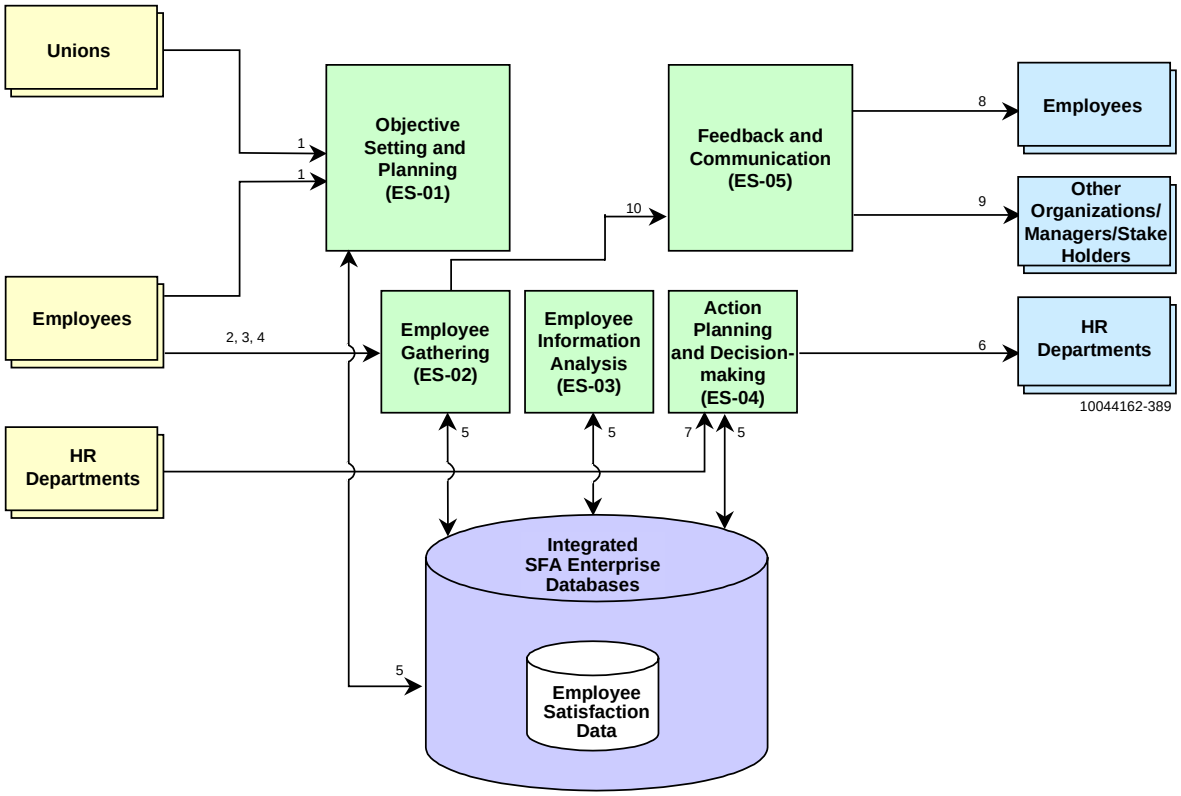
Figure IV.B-14. Customer Satisfaction Management Process Flow

Employee Satisfaction Management Process Flow

The process flow illustrated in Figure IV.B-15 depicts business interactions performed by SFA employees, and supporting data within the Employee Satisfaction Management process. The Set Objectives and Plans subprocess sets periodic performance goals and develops objectives for achieving employees satisfaction. Throughout the year, The Gather Employees Data subprocess collects data from SFA employees. The Analyze Employees Information subprocess rigorously analyzes the data and converts them into managerially significant information, which can then be used to identify gaps in program performance and initiate corrective action. Plans of Actions and Make Decisions subprocesses use this information to address critical employee concerns and continually improve employee programs.

Financial Management Process Flow

The process flow illustrated in Figure IV.B-16 depicts business interactions performed by external agents of the SFA business channels, SFA internals, and supporting data within the Financial Management process. The Core Financial System Management subprocess sets the framework in which all other core financial system processes operate. The General Ledger Management subprocess is involved either directly or indirectly with every financial event, since transactions to record financial events must be posted to the Department of Education general ledger and/or the SFA general ledger. The surrounding subprocesses interact with the General Ledger Management subprocess but may not be involved with every financial transaction. The Funds Management subprocess receives funding information from ED/CFO and manages fund appropriations, allotment, and balance for aid program. It supports both government-wide funds management policies and SFA's internal funds allocation methods and controls. The Payment Management subprocess is only involved with processing SFA payments. The Receipt Management subprocess maintains accounts receivable records by recording, billing, monitoring, and collecting amounts due the government whether previously established as a receivable or not. The Cost Management subprocess enables SFA to monitor and manage costs by cost object, activity, process, SFA organization unit, aid program, loan type, school, and financial partner. The Financial Management Reporting subprocess generates various financial reports that support effective financial management. The Loan Portfolio Management subprocess supports the management and performance evaluation of the SFA guaranteed and direct loan portfolios. The Budget Analysis and Development subprocess establishes a baseline for budget maintenance and develops the plan of actions for budget.



01 Satisfaction criteria and levels
02 Exit interviews
03 Survey data
04 Employee data
05 Employee data record
06 Action items
07 Training needs
08 Acknowledgement of feedback and thanks
09 Employee satisfaction data
10 Employee feedback data

Figure IV.B-15. Employee Satisfaction Management Process Flow

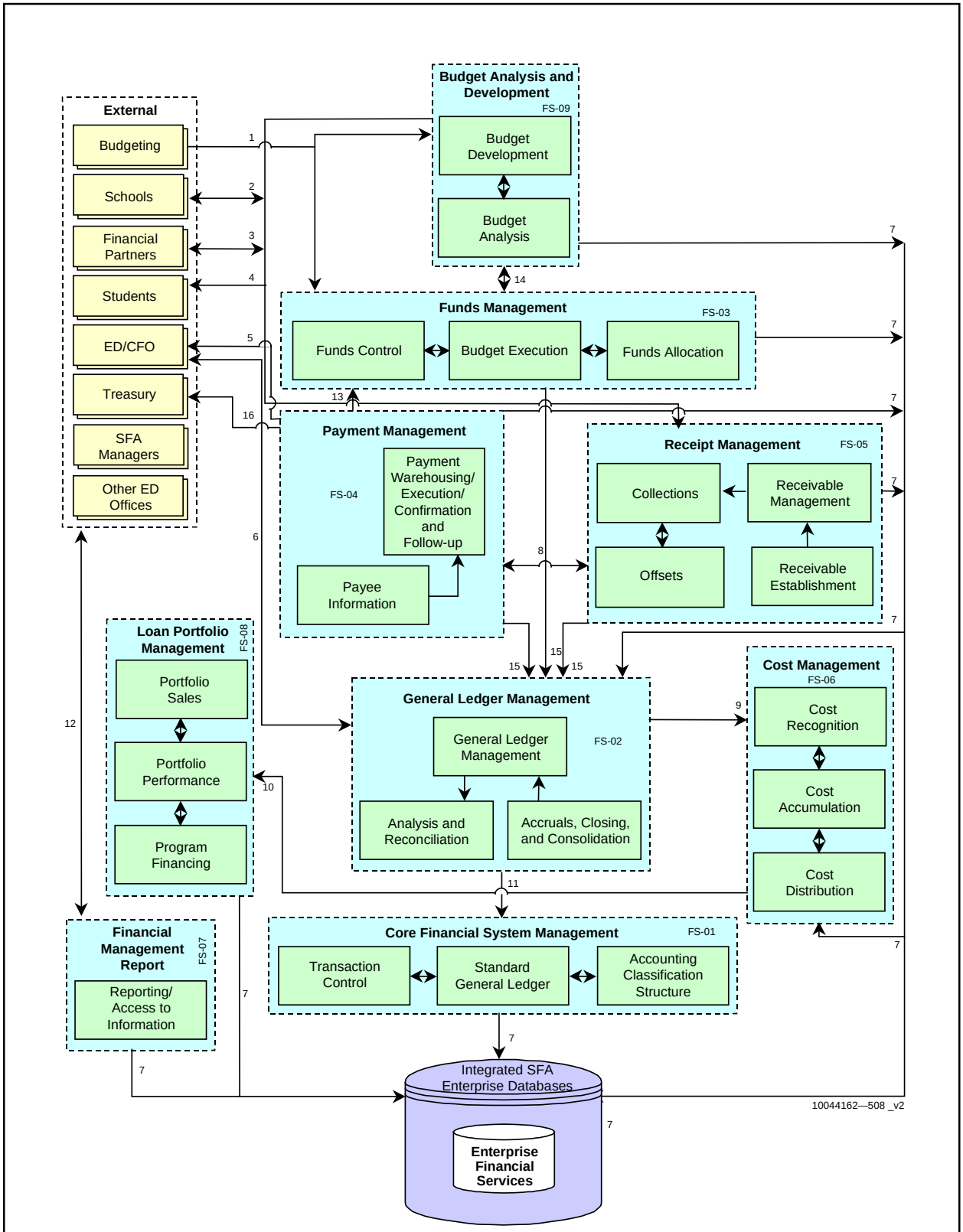


Figure IV.B-16. Financial Management Process Flow (1 of 2)

01 Appropriations, apportionments, allotments, and operating plans are sent to Funds Management while information on new programs and regulation are handled in Budget Development

02 School expectations are incorporated into Budget Development and information such as disbursement records and excess cash are handled in Receipt Management

03 Institution expectations go to Budget Development while data such as loan portfolio activity is exchanged and traced using Receipt Management

04 Data regarding expectations go to Budget Development while information such as Grant and Loan repayments are handled in Receipt Management

05 Advances (non-JIT schools) and various payments

06 Summary transactions are sent to OCFO and S&E transactions are received

07 All financial transaction data is stored in a central location

08 Offset information/collections

09 Financial transactions related to cost

10 Administrative cost and asset data

11 Standardized transaction and data format

12 Request for FMS data (e.g., school balance inquiries, budget control amounts, etc.) receive real-time results in either an ad hoc or standard form

13 Payment transactions are edited for funds control

14 Contingent upon access rights, eternal entities request, and receive custom as well as standard reports

15 Appropriate financial transactions are posted to the General Ledger

16 Payment details

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Figure IV.B-16. Financial Management Process Flow (2 of 2)

Human Resources Management Process Flow

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III.

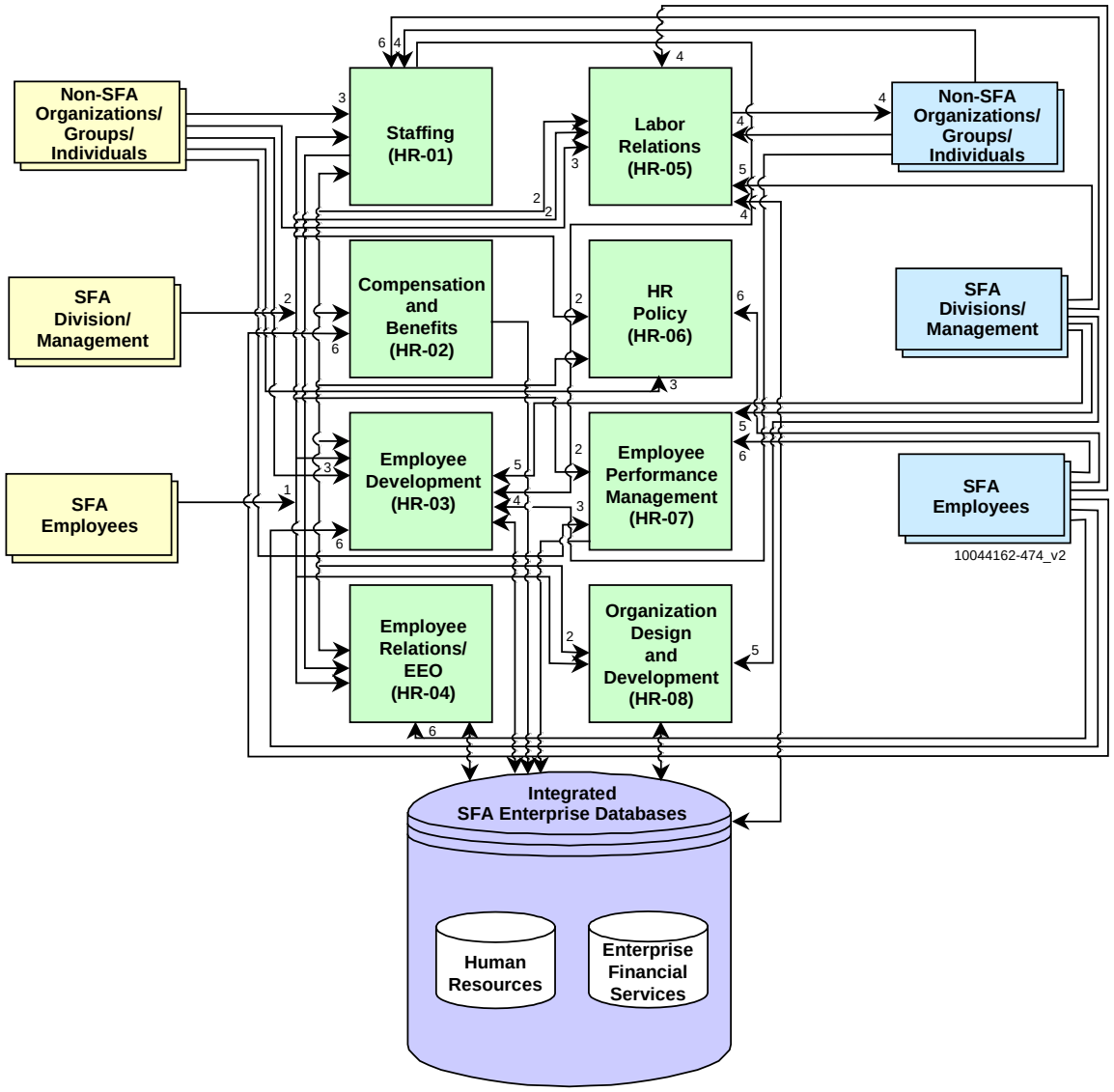
The process flow illustrated in Figure IV.B-17 depicts the principal business processes for the support function, Human Resource Management. This process involves establishment and filling of staffing requirements, development and management of employee compensation and benefits packages, development and administration of employee development plans, management of employee and labor relations, and establishment of performance goals for employees and the evaluation of how well employees meet those goals. It also includes more global functions such as the establishment of human resource policies and procedures for SFA employees, and the evaluation and assessment of the impact and effectiveness of change initiatives on employees and SFA.

IT Management Process Flow

The process flow illustrated in Figure IV.B-18 depicts the principal business processes for the support function, IT Management. This process involves enterprise-level functions such as evaluation of IT investment requests against common operating environment (COE) and organizational priorities, maintenance and production, tracking and forecasting of system capacity, development of contingency plans and emergency procedures, enforcement of security procedures, and development of standards (data, common operating environment). It also includes application-specific functions such as information systems development, configuration management, development of interface requirements, tracking of partner performance, reviews and audits of work products against standards, and assessment of cost/schedule status.

Facilities Management Process Flow

The process flow illustrated in Figure IV.B-19 depicts the principal business processes for the support function, Facilities Management. This process involves evaluation of equipment/telecommunications needs, management of assets and equipment (including inventorying and reordering), planning for and managing space allocation, physical security (e.g., evacuation plans in case of emergency, training on safety procedures), maintenance of SFA facilities, and administering and maintaining mailroom and reproduction services.



01 Employee requests for services/information (e.g., benefits request, cost/benefit analyses) and employee information (e.g., time reporting, skills survey)

02 SFA divisions/management request for action/information (e.g., recommendations for hire, workplace disputes) and information (e.g. organization's mission, employee evaluations)

03 Non-SFA organizations/groups/individuals request for services/information (e.g., union grievances) and information (candidate resume/job application)

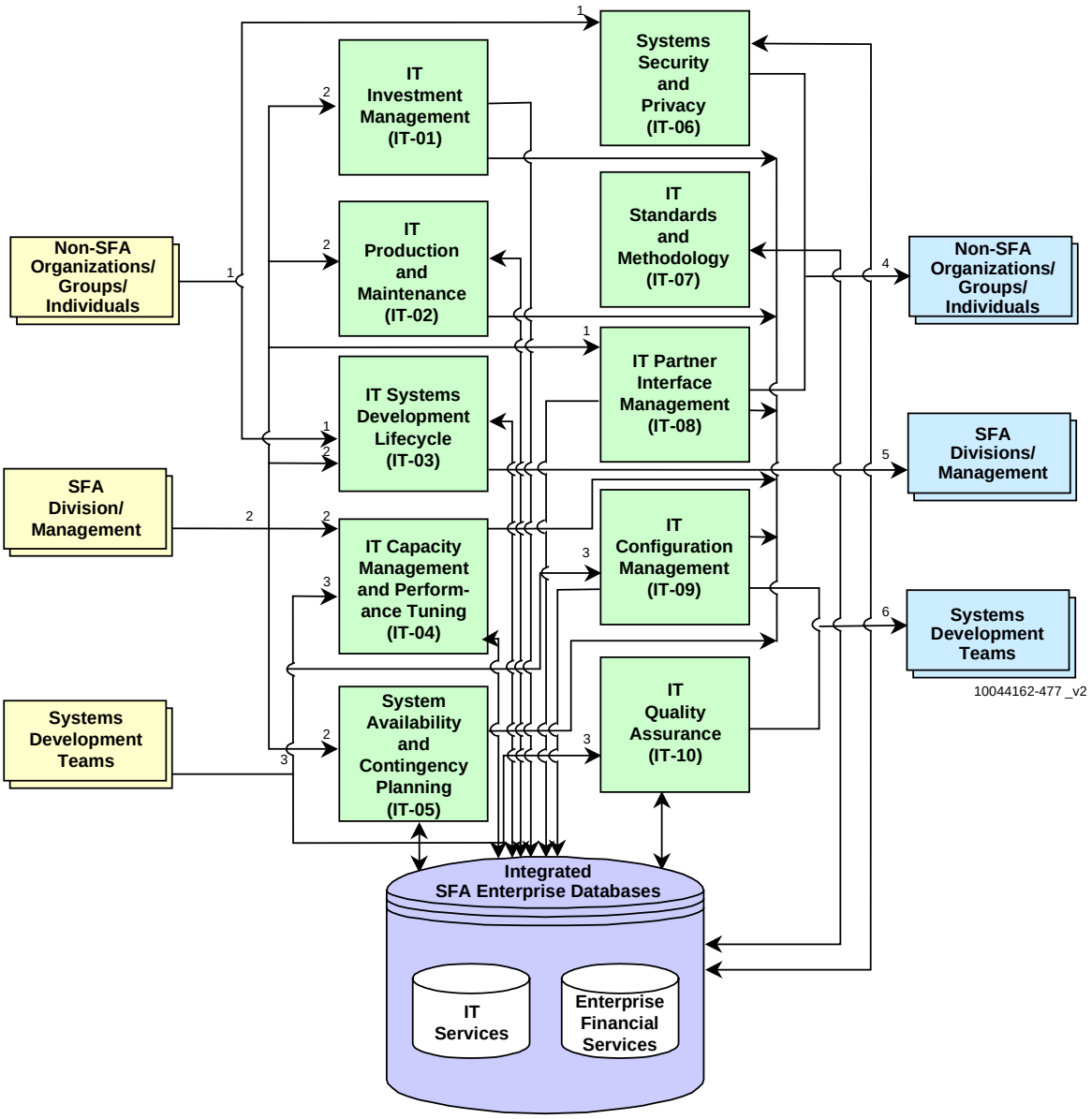
04 Information/services to non-SFA organizations/groups/individuals (e.g., offer package, curriculum)

05 Information/services to SFA divisions/management (e.g., employee dispute resolution)

06 Information/services to SFA employees (e.g., information on internal/external training sources)

Figure IV.B-17. Human Resources Management Process Flow

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 IT trends and enabling technology, interface requirements

02 SFA divisions/management requests for services/information (e.g., requests for IT-related investment resources, request for maintenance) and information (e.g., organizational priorities, service level agreements)

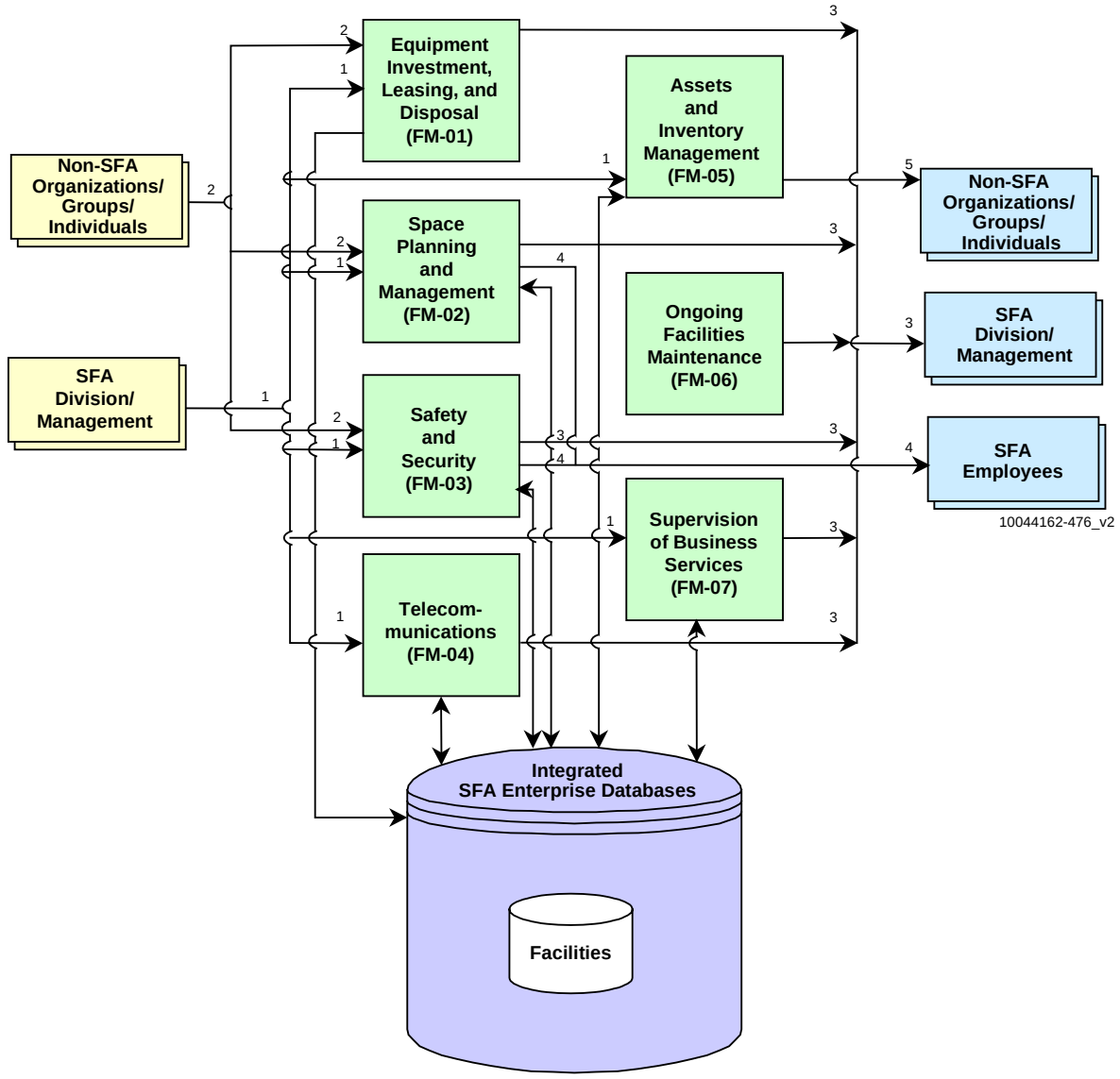
03 Application processing and storage capacity requirements, notice of availability of configurable item, work products

04 Systems security policies and procedures; standards, procedures and performance metrics

05 Information/services to SFA divisions/management (e.g., recommendations for IT investment, business applications, contingency plans)

06 SFA configuration management policies and procedures; system configuration management plan; audits of work products; standards violations

Figure IV.B-18. IT Management Process Flow



01 SFA divisions/management requests for action/information (e.g., employee move, request for employee security access) and information (e.g., lease versus buy analysis)

02 Non-SFA organizations/groups/individuals (e.g., government regulations/codes, offers)

03 Information and services to SFA divisions/management (e.g., purchase requisitions, space forecasts, telecommunications usage/cost by site)

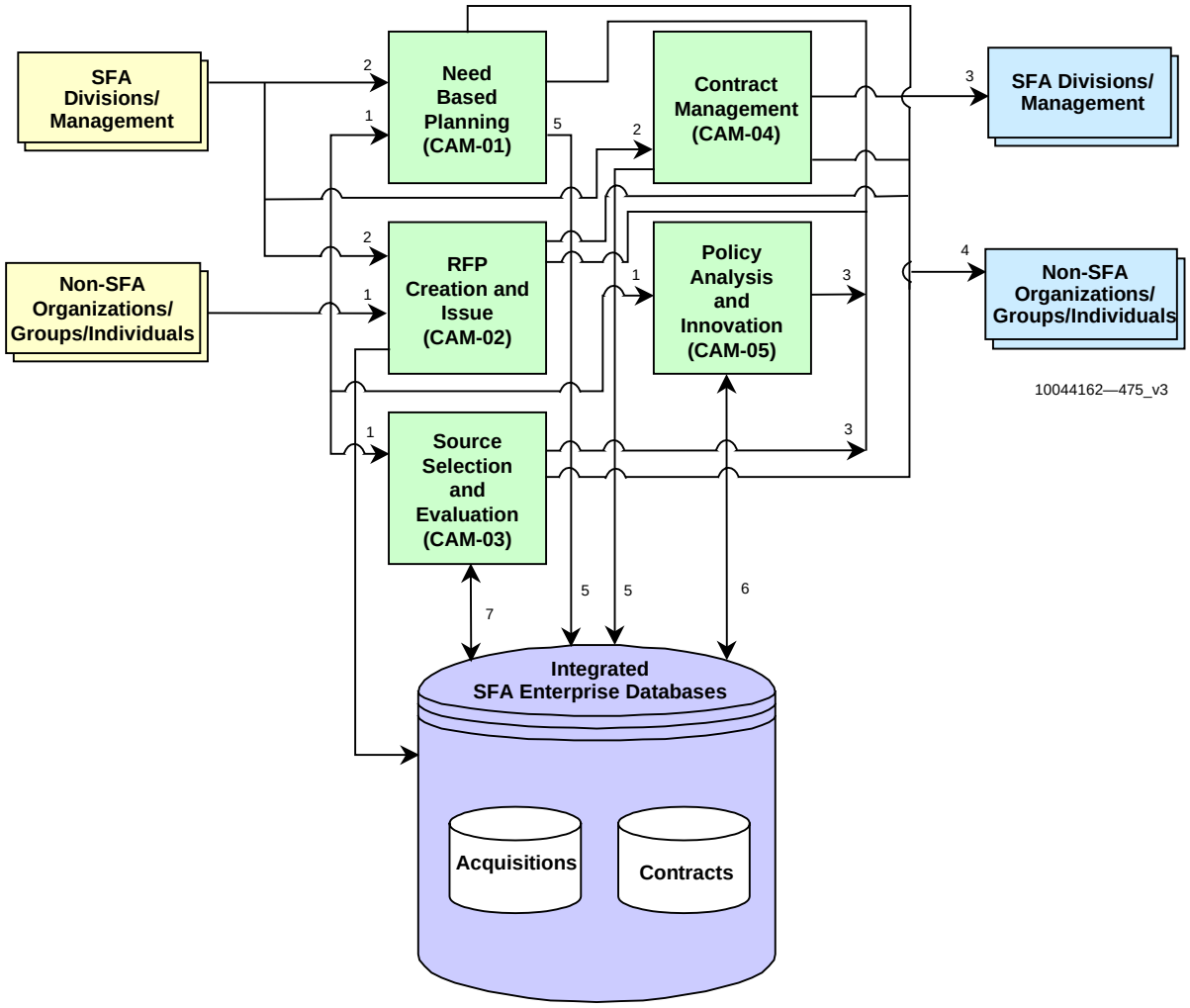
04 Information and services to SFA employees (e.g., medical services, safety training)

05 Information and services to non-SFA organizations/groups/individuals (e.g., product orders)

Figure IV.B-19. Facilities Management Process Flow

Contracts and Acquisition Management Process Flow

The process flow illustrated in Figure IV.B-20 depicts the principal business processes for the support function, Contracts and Acquisition Management. This process involves acquisition planning, procurement (creating the RFP and selecting a supplier of goods or services), the management of contracts awarded in the procurement process, and evaluation of contract and acquisition policies using input from industry and other government agencies.



01 Information/services from non-SFA organizations/groups/individuals (e.g., proposals, response to request for information)

02 Request for information/services from SFA divisions/management (e.g., investment requests, request for contract modifications) and information (PBO objectives)

03 Information/services to SFA divisions/management (e.g., investment decisions, acquisition strategies)

04 Information/services to non-SFA organizations/groups/individuals (e.g., RFP contract award)

05 Acquisition and contract details

06 Policy details

07 RFP details

Figure IV.B-20. Contracts and Acquisition Management Process Flow

B.5 Level II SFA Enterprise Conceptual Data Model – Subject Areas

Level I subject areas have been further partitioned into Level II subject areas as shown in Figure IV.B-21. Level I subject areas are shown in the shaded boxes. Level II subject areas are shown as boxes nested within the Level I boxes. This indicates that the Level I subject area is a "parent" subject area to the Level II subject areas. The lines between Level I and Level II boxes show high-level relationships between subject areas. As with the Level I data model, these relationships are actually composites of lower-level relationships between entities in the subject areas.

The content of Levels I and II subject areas is described in the following paragraphs.

1. **Student Services.** This subject area includes standardized data objects that support aid applications, aid awards, and loan repayments.

   1.1. **Aid Awareness.** This subject area includes standardized data objects about target markets for aid awareness programs, SFA initiatives to increase awareness in these markets, partnership campaigns, and future co-branding or sponsorship opportunities designed to reach the target market through popular media.

   This subject area includes standardized data objects about financial aid programs, Title IV and non-Title IV that are available to participants. Examples of aid programs include the Direct Loan Program, FFELP, the Pell Grant Program, and the Perkins Loan Program. Information about different versions of each aid program is maintained as well.

   1.2 **Aid Applications.** This subject area includes standardized data objects pertaining to the FAFSA aid application that students submit to request Title IV aid. It includes information about various activities such as collecting, analyzing, organizing and verifying application information.

   1.3 **Loan Repayments.** This subject area includes standardized data objects pertaining to exit counseling, collection of money from borrowers who have entered into repayment, invoices, processing of loan consolidation requests, and attempts to collect on defaulted loans.

2. **School Services.** This subject area includes standardized data objects for school eligibility services, school program support services, and aid origination and disbursement.

   2.1 **Aid Awards.** This subject area includes standardized data objects on the creation and maintenance of aid packages for students.

   2.2 **School Eligibility Services.** This subject area includes standardized data objects that support the determination of a school's eligibility to participate in Title IV programs, school certifications, information on school reviews, audits and appeals and the participation levels and status of certified schools.

2.3 **School Program Support Services.** This subject area includes standardized data objects that support school applications to participate in Title IV programs, school financial status, school performance, and information on school aid training programs.

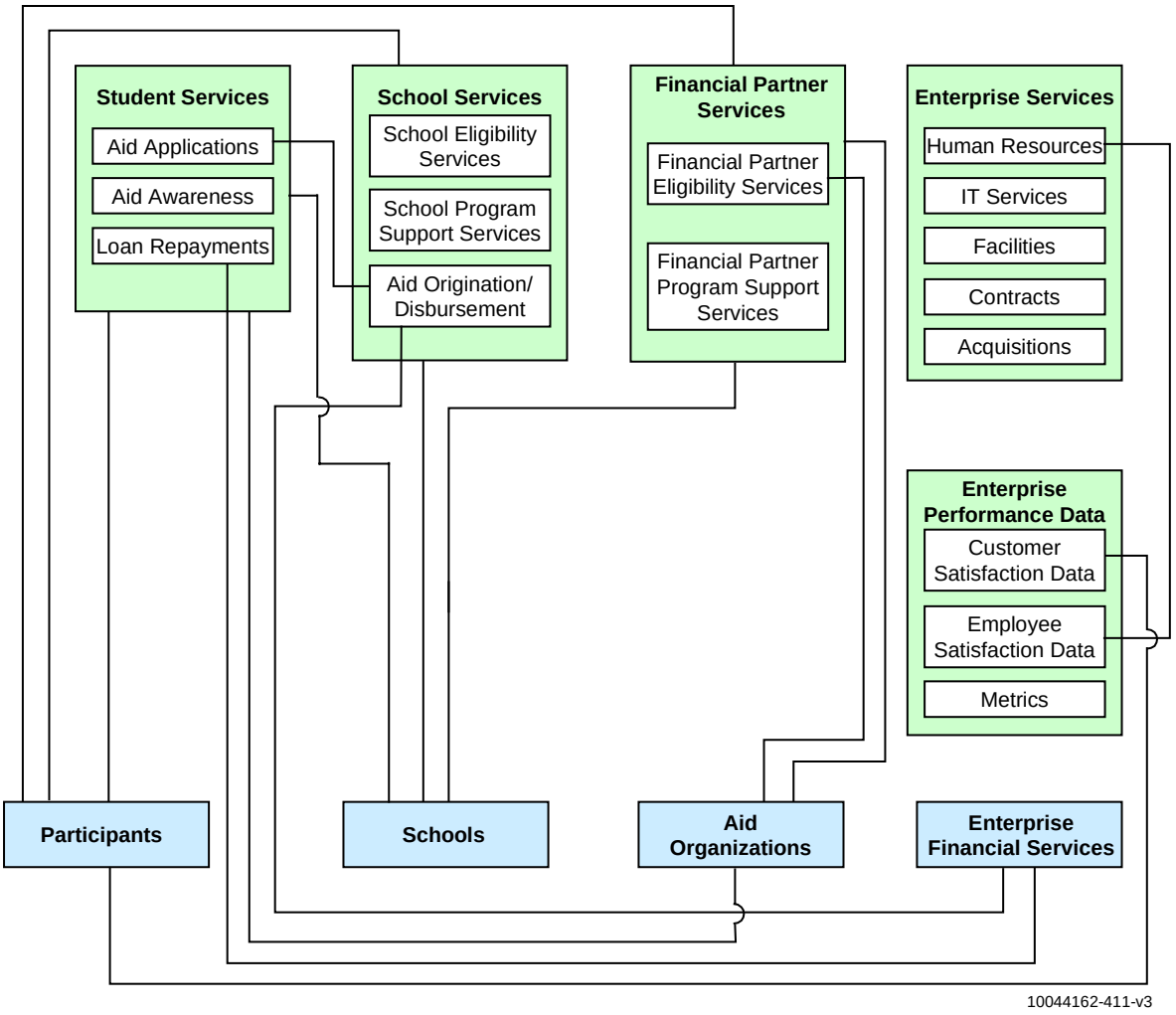


Figure IV.B-21. SFA Enterprise Conceptual Data Model (Level II)

2.4 **Aid Origination and Disbursement.** This subject area includes standardized data objects about the creation of grants and loans, disbursements, edit checks, participant authorizations, disbursement authorizations, scheduled disbursements, draw-down methods, adjustments, cancellation records, tracking the enrollment status of all program participants, and forwarding information to lenders and guaranty agencies.

3. **Financial Partner Services.** This subject area includes standardized data objects that are used to provide eligibility and program support services to financial partners.

3.1 **Financial Partner Eligibility Services.** This subject area includes standardized data objects that support determination of a financial

partner's eligibility to participate in Title IV programs, processing of applications and questionnaires, and information on deactivation.

3.2 **Financial Partner Program Support Services.** This subject area includes standardized data objects that support financial partner's applications to participate in Title IV programs, financial partner characteristics, audits, reviews and appeals, default rates, financial partner performance, and information on aid training programs.

4. **Enterprise Performance Data.** This subject area includes standardized data objects that support the collection and analysis of customer satisfaction data, employee satisfaction data, and performance metrics on key SFA business processes.

4.1 **Customer Satisfaction Data.** This subject area includes standardized data objects that record customer inquiries and resolution to the inquiries as well as customer survey results.

4.2 **Employee Satisfaction Data.** This subject area includes standardized data objects that record employee inquiries and resolution to the inquiries as well as employee survey results.

4.3 **Metrics.** This subject area includes standardized data objects that support performance measuring. It includes metrics to be collected (e.g., unit cost), performance goals, performance measurement, and performance evaluations.

5. **Enterprise Services.** This subject area includes standardized data objects pertaining to human resources, information technology services, facilities, contracts, and acquisitions.

5.1 **Human Resources.** This subject area includes standardized data objects pertaining to managing and supporting employees across the SFA enterprise.

5.2 **IT Services.** This subject area includes standardized data objects to support technology planning, investment, implementation, production and maintenance, capacity management and performance tuning, systems availability and contingency planning, systems security and privacy, partner interfaces, configuration management, and quality assurance/control.

5.3 **Facilities.** This subject area includes standardized data objects about activities that include equipment leasing and disposal, space planning and management (layout/buildout architecture and engineering design), safety and security, telecommunications, asset and inventory management, ongoing facilities maintenance, and supervision of business services (such as reprographics, mailroom, etc.).

5.4 **Contracts.** This subject area includes standardized data objects pertaining to contract management.

5.5 **Acquisitions.** This subject area includes standardized data objects pertaining to need-based planning, request for proposal (RFP) details and maintenance, source selection and evaluation, and policy analysis and innovations.

6. **Participants.** This subject area includes standardized data objects on members of the public who have expressed an interest in participating in an SFA program. Examples include applicants, borrowers, potential students, students, and parents/guardians.

7. **Schools.** This subject area includes standardized data objects about educational and vocational institutions that have expressed an interest in or have participated in an SFA program. For example, it includes information on school characteristics (e.g., school calendar, FISAP data, open/closed status) and school ownership.

8. **Aid Organizations.** This subject area includes standardized data objects about organizations that provide financial aid to students, including nonprofit organizations, schools, and lenders.

9. **Enterprise Financial Services.** This subject area includes standardized data objects about various financial activities that include managing the flow of funds between students, SFA, schools, financial partners and other government agencies, managing consumer loans, and financial management reporting.

B.6 Level II SFA Business Subprocess Action Matrix

The SFA business subprocess action matrix explains the interaction between business subprocesses that record what the SFA business does, and subject areas that describe the things of interest to the business and the relationships between them.
Figure IV.B-22 indicates the impact of subprocesses on related data in various subject areas. Subject areas are displayed down the side (labeling the rows); subprocesses are shown across the top (labeling the columns). The intersection of a subprocess and a subject area indicates that a subprocess has some impact on the data contained in the subject area. There are four possible impacts a subprocess can have on data: the subprocess can cause some information to be created, read (to provide needed information to the process), updated, or deleted. Thus,

- A “C” indicates the subprocess could cause some new information in that subject area to be created (recorded for the first time).
- An “R” indicates the subprocess may need information from that subject area to complete an action.
- A “U” indicates the subprocess could cause some existing information in that subject area to be updated (changes to existing data).
- A “D” indicates the subprocess could cause some information in that subject area to be deleted.

	Student Services	Aid Awareness	Aid Application	Loan Repayment	School Services	Program Eligibility for Schools	Program Support for Schools	Financial Trans-actions for Schools	Aid Origination and Disbursement	Financial Partner Services	Program Eligibility for Financial Partners
■ **Student Services**	C,R,U,D										
– Aid Applications			C,R,U,D								
– Aid Awards		C,R,U,D									
– Loan Repayments				C,R,U,D							
■ **School Services**	R, 4				C,R,U,D						
– School Eligibility Services						C,R,U,D					
– School Program Support Services							C,R,U,D				
– Aid Originations and Disbursements	R			R					C,R,U,D		
■ **Financial Partner Services**										C,R,U,D	
– Financial Partner Eligibility Services				R							C,R,U,D
– Financial Partner Program Support Services											
■ **Enterprise Performance Data**											
– Customer Satisfaction Data											
– Employee Satisfaction Data											
– Metrics											
■ **Enterprise Services**											
– Human Resources											
– IT Services											
– Facilities											
– Contracts											
– Acquisitions								R			
■ **Participants**	C,R,U,D	C,R,U,D		R,U							
■ **Schools**	R, 4	R		R	R,U	R,U	R,U	R,U			
■ **Aid Organizations**	R	R		R				R		C,R,U,D	
■ **Aid Program Activities**	C,R,U,D		C,R,U,D								
■ **Enterprise Financial Services**	C,R,U,D			C,R,U,D	C,R,U,D			C,R,U,D	C,R,U,D	C,R,U,D	

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Figure IV.B-22. SFA Business Subprocess Action Matrix (Level II) (1 of 2)

	Program Support for Financial Partners	Financial Transactions for Financial Partners	**Performance Management**	Customer Satisfaction Management	Employee Satisfaction Management	Financial Management	**Enterprise Services**	HR Management	IT Management	Facilities Management	Contracts and Acquisitions
■ **Student Services**											
– Aid Applications											
– Aid Awards											
– Loan Repayments						C,R,U,D					
■ **School Services**											
– School Eligibility Services											
– School Program Support Services											
– Aid Originations and Disbursements						C,R,U,D					
■ **Financial Partner Services**											
– Financial Partner Eligibility Services											
– Financial Partner Program Support Services	C,R,U,D										
■ **Enterprise Performance Data**			C,R,U,D								
– Customer Satisfaction Data				C,R,U,D							
– Employee Satisfaction Data					C,R,U,D						
– Metrics			C,R,U,D								
■ **Enterprise Services**			R,U				C,R,U,D				
– Human Resources			R,U		R,U			C,R,U,D			
– IT Services									C,R,U,D		
– Facilities										C,R,U,D	
– Contracts											C,R,U,D
– Acquisitions						R,U					C,R,U,D
■ **Participants**			R,U	R,U							
■ **Schools**											
■ **Aid Organizations**											
■ **Aid Program Activities**											
■ **Enterprise Financial Services**		R,U				C,R,U,D	R,U				C,R,U,D

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Figure IV.B-22. SFA Business Subprocess Action Matrix (Level II) (2 of 2)

B.7 Level II Subprocess Flows

The modernized SFAM process architecture establishes various internal and external business interactions performed by external agents of the SFA business channels and SFA internals for all subprocess level activities. The business subprocess flows at Level II establish SFA business interactions and their relationships with external agents of aid organizations, schools, and students. The business interactions do not necessarily translate into physical interfaces in the technical architecture but depict the logical processing flow among the processes from a business perspective at the Level II architecture.

Aid Awareness Subprocess Flows

AW-01 Target Markets

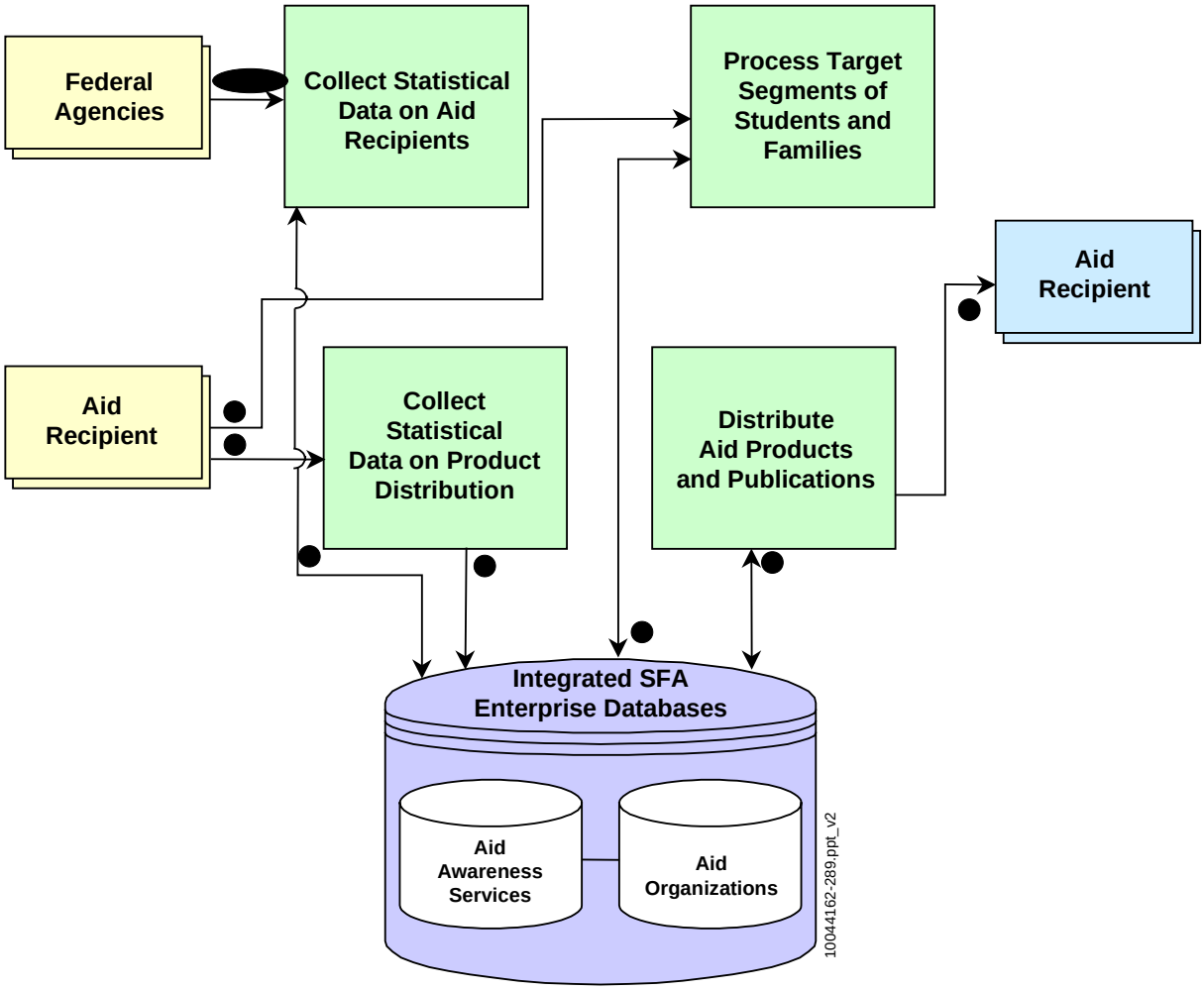
The subprocess flow illustrated in Figure IV.B-23 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Target Markets subprocess. It identifies which segments of the students and parents to target for aid awareness programs and develops profiles to distinguish markets.

AW-02 Develop Awareness Programs

The subprocess flow illustrated in Figure IV.B-24 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Develop Awareness Programs subprocess. After targeting markets for capturing enough data from students, families, and schools, SFA Develops Awareness Programs and tailors its message to the requirements of each segment of the markets.

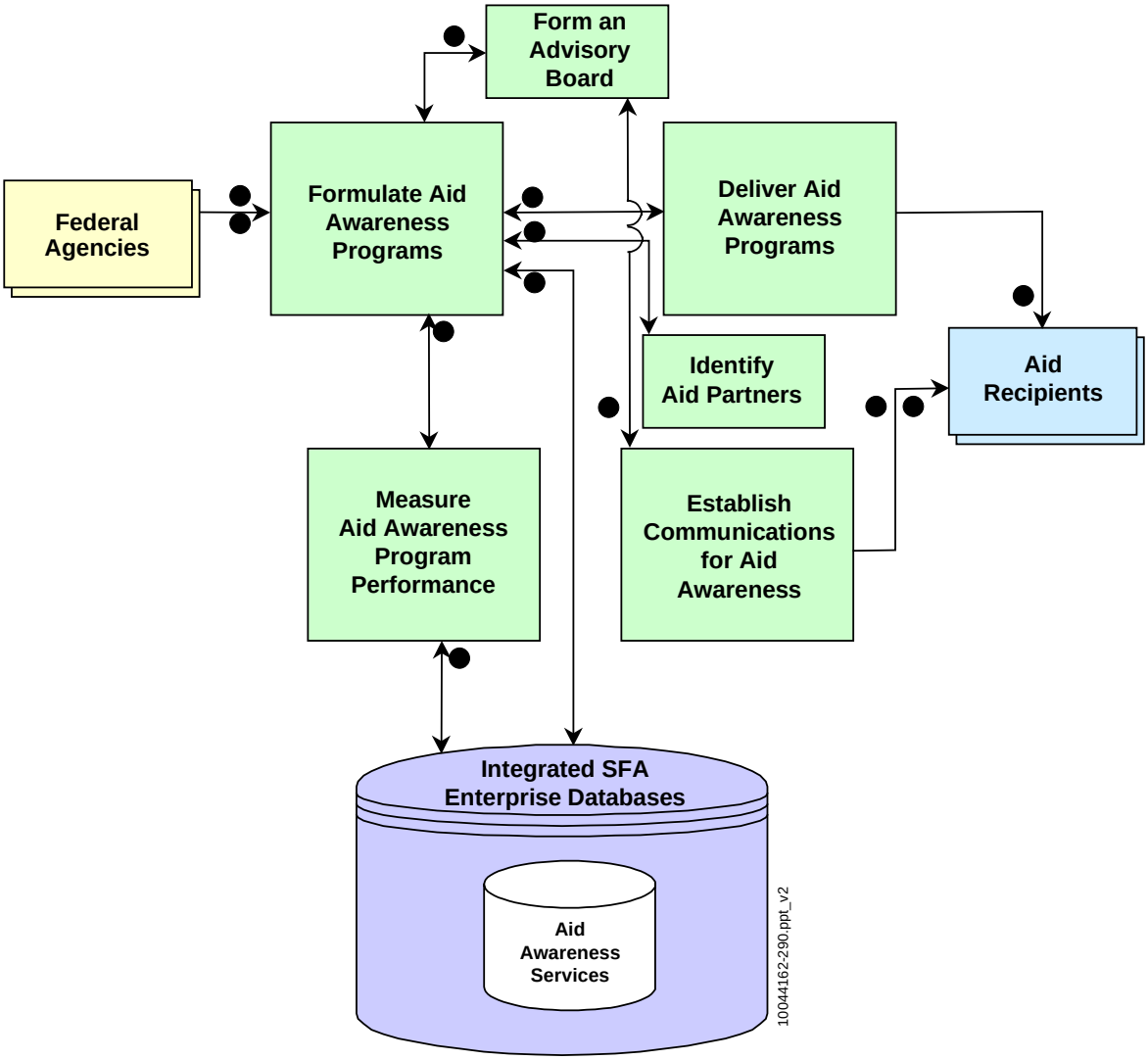
AW-03 Execute Awareness Programs

The subprocess flow illustrated in Figure IV.B-25 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Execute Awareness Programs subprocess. SFA executes Awareness Programs, which involves input from schools and lenders as partners in distributing SFA's message and reaches out to students and their families either directly or through intermediaries.



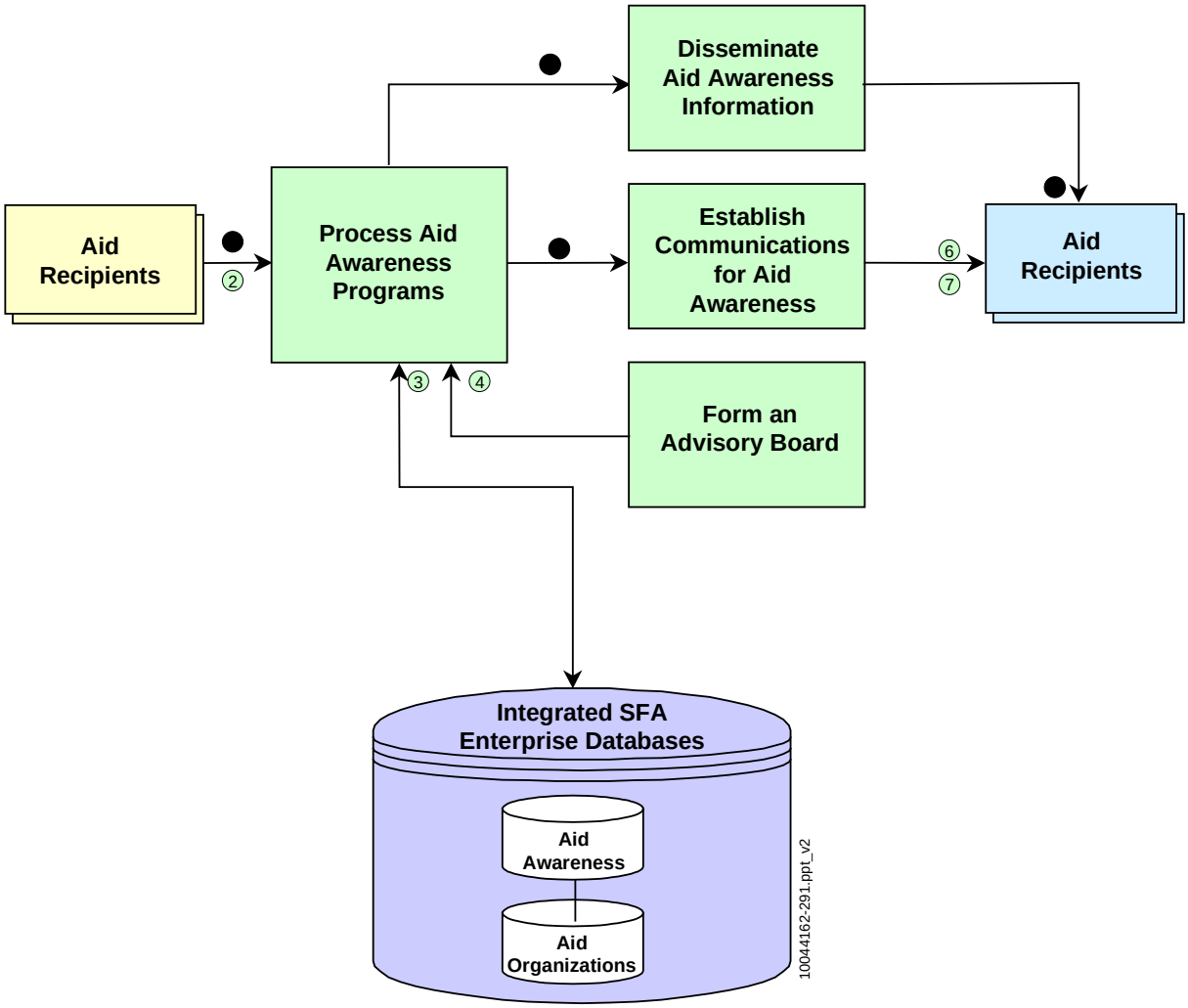
01 Census data
02 Commissioned surveys
03 Grant reports
04 Aid survey data
05 Statistical data updates
06 Profile and target segments
07 Aid product details
08 Aid products and publications
09 Statistical data

Figure IV.B-23. AW-01 Target Markets



01 Policies and regulations
02 Non-SFA awareness programs
03 Aid awareness data
04 Performance measurement criteria
05 Aid awareness performance data
06 Title IV aid program
07 Aid organization for each target segment
08 Aid awareness program data
09 Advisory Board Communications
10 Aid awareness programs for post-secondary education
11 New programs and services
12 Communication results

Figure IV.B-24. AW-02 Develop Awareness Programs



01 Inquiries (800-4-FEDAID)
02 Aid awareness program details
03 Aid awareness data
04 Web resource guidance
05 Aid awareness information and tools through mail, fax, electronic media, web sites, video/TV, conferences/ teleconferences, etc.
06 Launching new products, programs and services
07 Meetings and group interactions

Figure IV.B-25. AW-03 Execute Awareness Programs

AW-04 Provide Access to Financial Simulation Modeling

The subprocess flow illustrated in Figure IV.B-26 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Provide Access to Financial Simulation Modeling subprocess. It facilitates access to models of various simulations of financial aid that may include cost of attendance and student financial aid information for a given school, estimated salaries given a specific career path, and state aid program information.

AW-05 Monitor Program Effectiveness

The subprocess flow illustrated in Figure IV.B-27 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Monitor Program Effectiveness subprocess. For all subprocesses in the Aid Awareness process, Aid Awareness Monitors Program Effectiveness both directly through measurement of key performance criteria and through feedback from students, schools, and lenders.

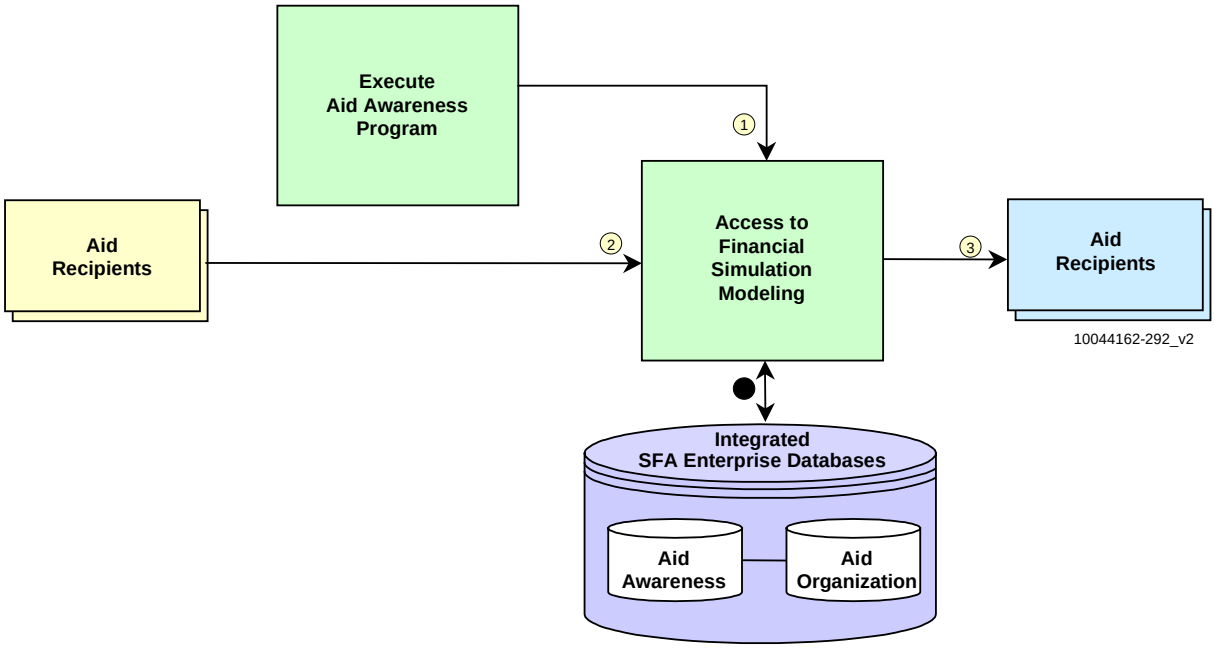
Aid Application Subprocess Flows

AA-01 Design and Distribution of Application Forms

The subprocess flow illustrated in Figure IV.B-28 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Design and Distribution of Application Forms subprocess. It designs an application form that reflects changes to the law, regulation, and community input. The subprocess executes the production and distribution of application forms across students, parents, schools, and financial partners.

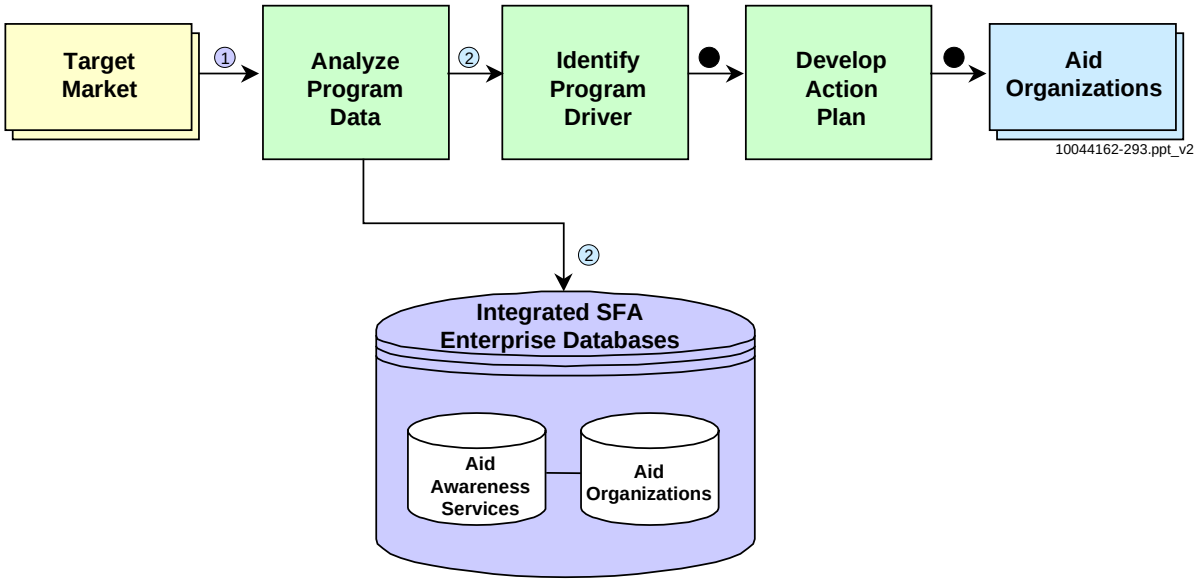
AA-02 Manage Applications

The subprocess flow illustrated in Figure IV.B-29 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Aid Applications subprocess. It manages the information on the financial aid application received from participants (including PLUS loans). It maintains other information including corrections to the application, borrower authorization to endorse financial aid applications, borrower signature of promissory note(s), and the waiver to release information from other external entities. This subprocess manages the creation and maintenance of PINs and/or digital signatures.



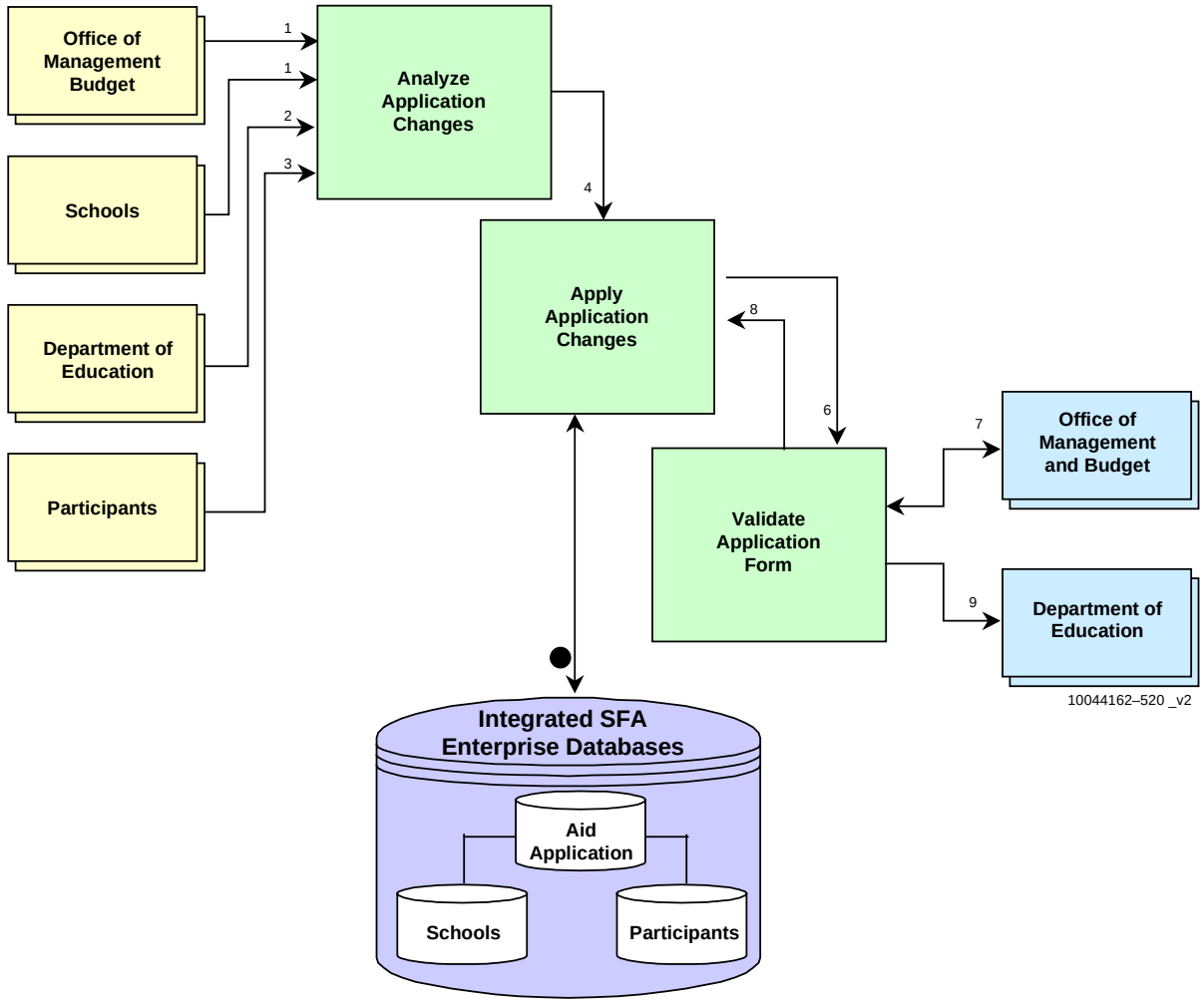
01 Debt management details
02 Debt management requests
03 Debt management models

Figure IV.B-26. AW-04 Provide Access to Financial Simulation Modeling



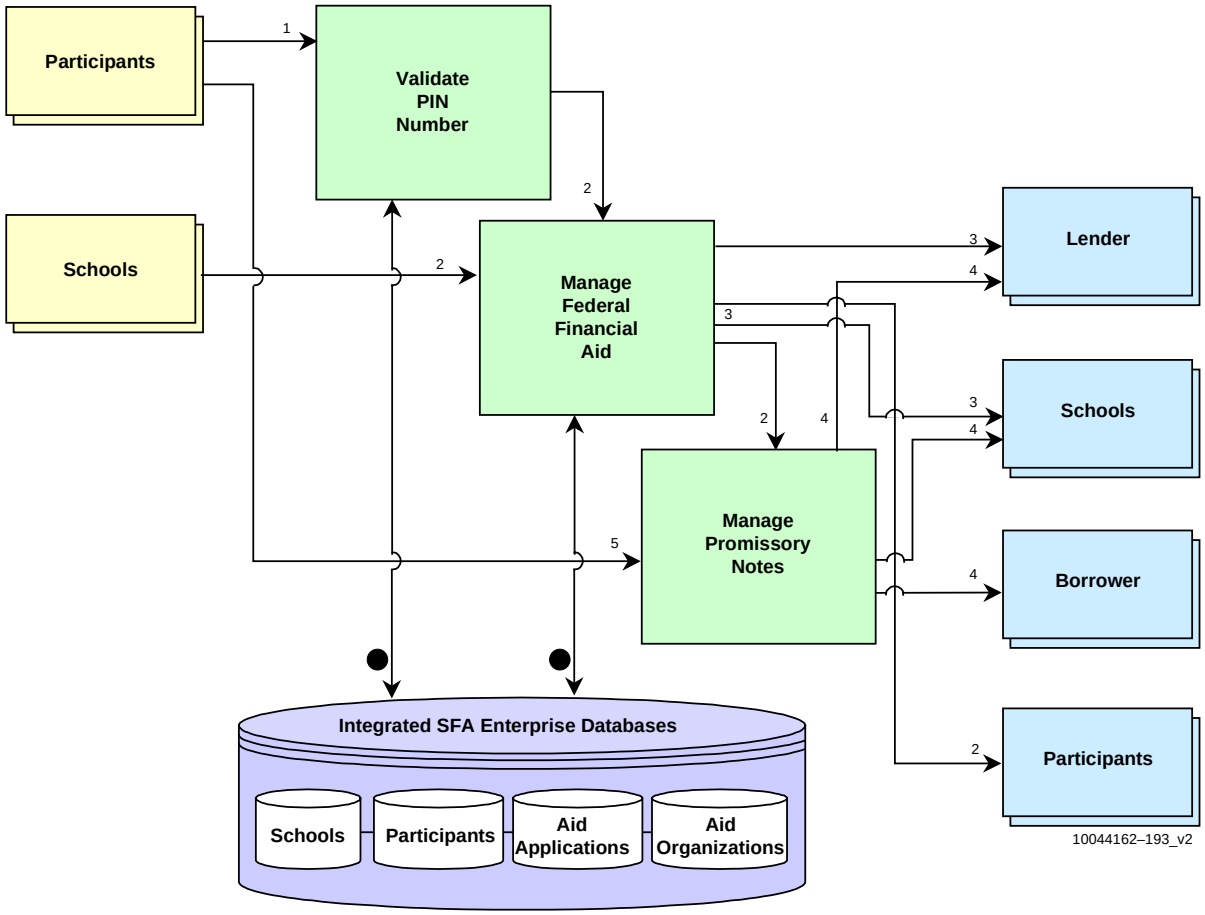
01 Application data and performance data statistics
02 Program measurement details
03 Program plans

Figure IV.B-27. AW-05 Monitor Program Effectiveness



01 Change requests
02 Policy changes
03 User suggestions
04 Recommended changes
05 Application details
06 Updated application
07 Final clearance
08 Additional requirements
09 Validated form

Figure IV.B-28. AA-01 Design and Distribution of Application Forms



01 PIN number
02 Aid application details
03 Notification of FFELP request
04 Promissory note
05 Signature

Figure IV.B-29. AA-02 Manage Applications

AA-03 Obtain Eligibility Assessment Information

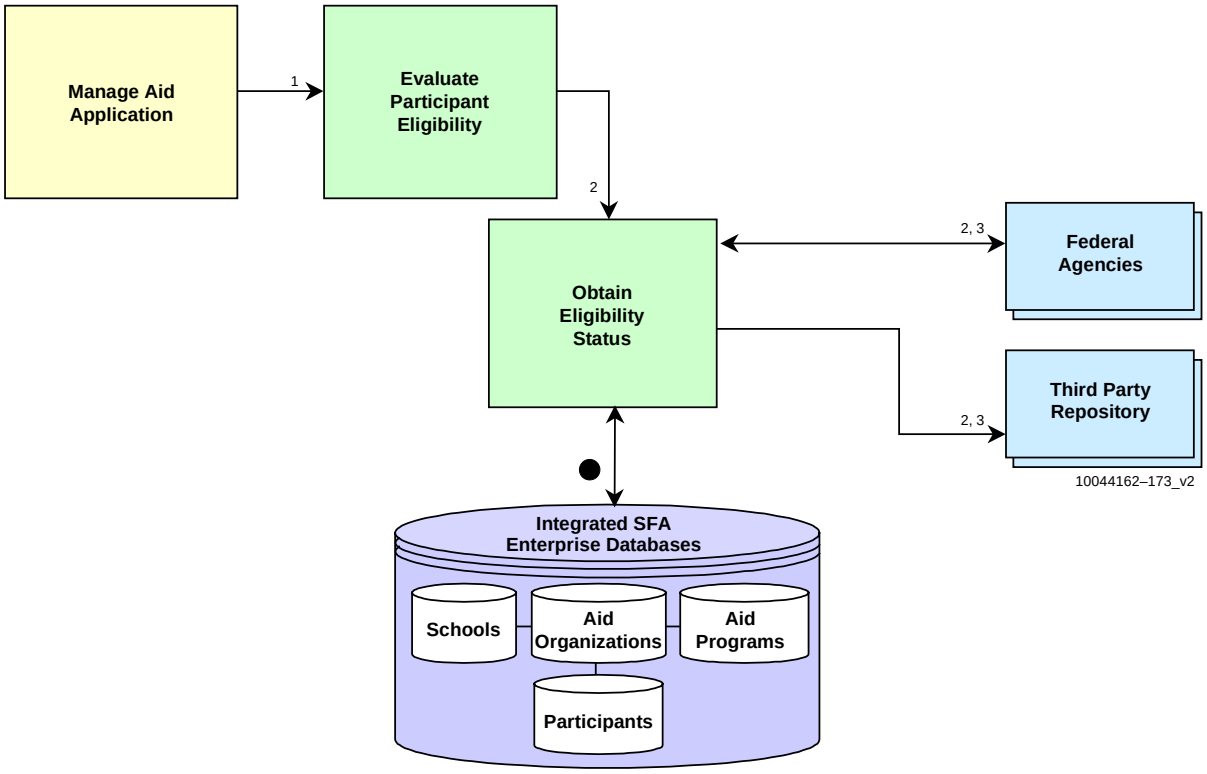
The subprocess flow illustrated in Figure IV.B-30 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Obtain Eligibility Assessment Information subprocess. It serves as a central administrator in obtaining Eligibility Assessment Information for the student's Aid Application needs, performing a range of duties, from holding student authorizations for access to classified information, to generating promissory notes from a lender of the student's choice.

AA-04 Assess Participant Eligibility

The subprocess flow illustrated in Figure IV.B-31 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Assess Participant Eligibility subprocess. It calculates estimated family contribution (EFC), determines eligibility, and notifies the participant and other authorized parties (e.g., schools, state agencies) of eligibility determination.

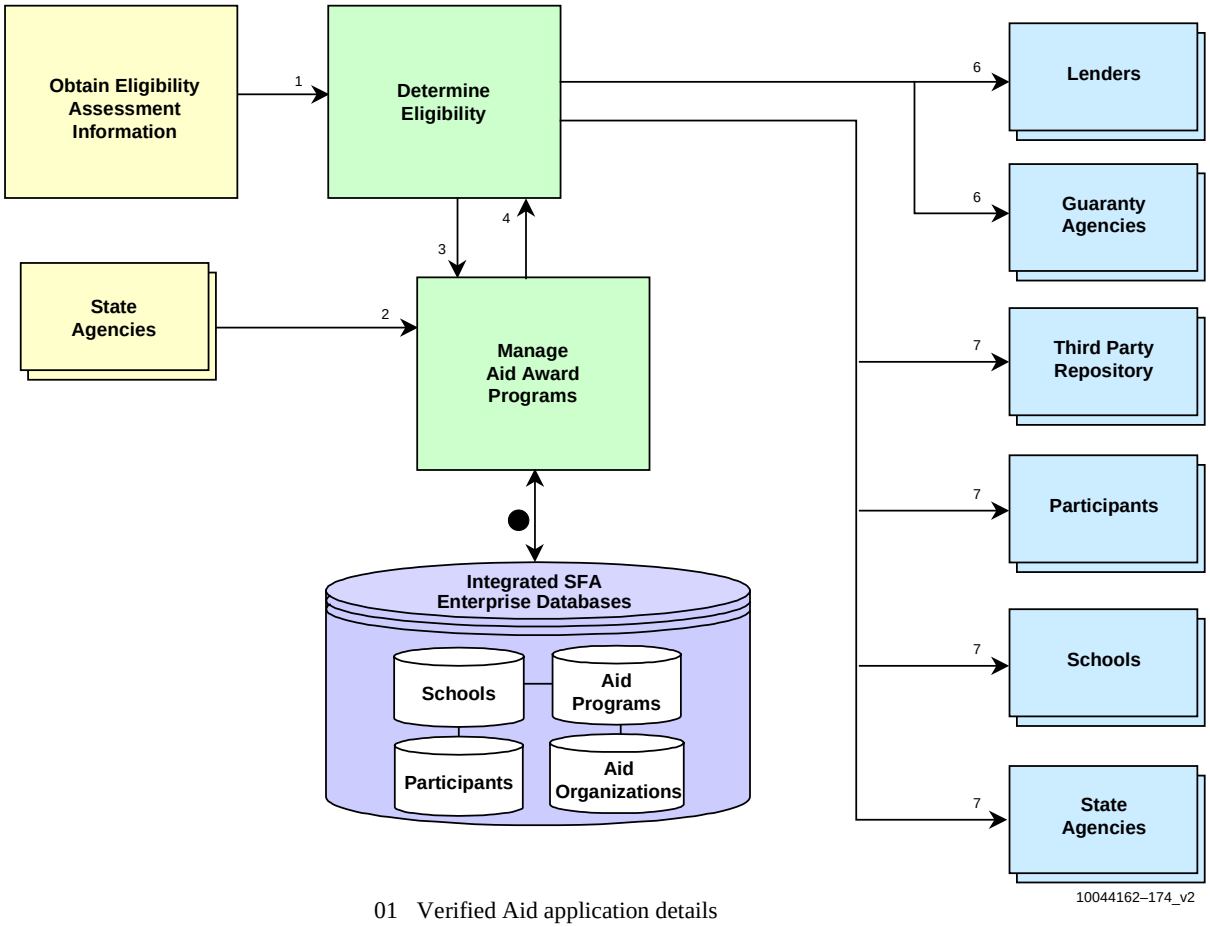
AA-05 Manage Aid Packages

The subprocess flow illustrated in Figure IV.B-32 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Aid Packages subprocess. It supports packaging, including providing applicant aid history to schools to assist them in creating aid packages, and forwarding aid package information to the participant.



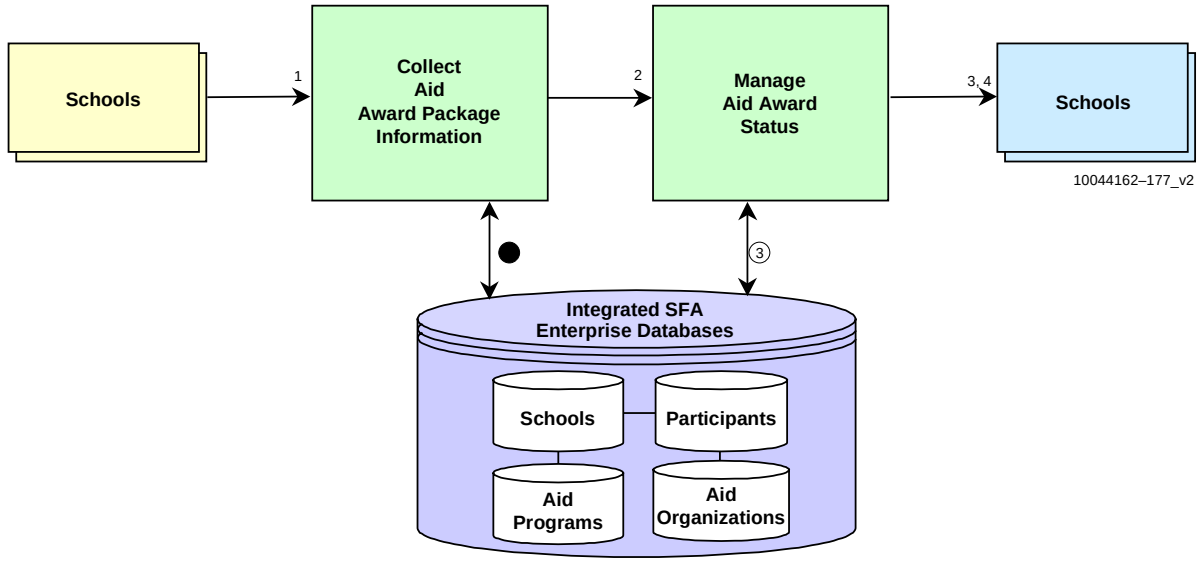
01 Aid application details
02 Aid application details to be verified
03 Verification status
04 Verified application details

Figure IV.B-30. AA-03 Obtain Eligibility Assessment Information



01 Verified Aid application details
02 Aid award — Funding details
03 Aid application details
04 Aid award amounts
05 Aid programs details
06 Prospective Aid participants
07 Participant eligibility assessment

Figure IV.B-31. AA-04 Assess Participant Eligibility



01 Aid award package details
02 Aid award packages
03 Participant aid history details
04 Aid package information

Figure IV.B-32. AA-05 Manage Aid Package

Loan Repayment Subprocess Flows

LR-01 Manage Repayment Counseling

The subprocess flow illustrated in Figure IV.B-33 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Repayment Counseling subprocess. It provides repayment exit counseling to a student about debt and accumulated indebtedness.

LR-02 Select Repayment Option

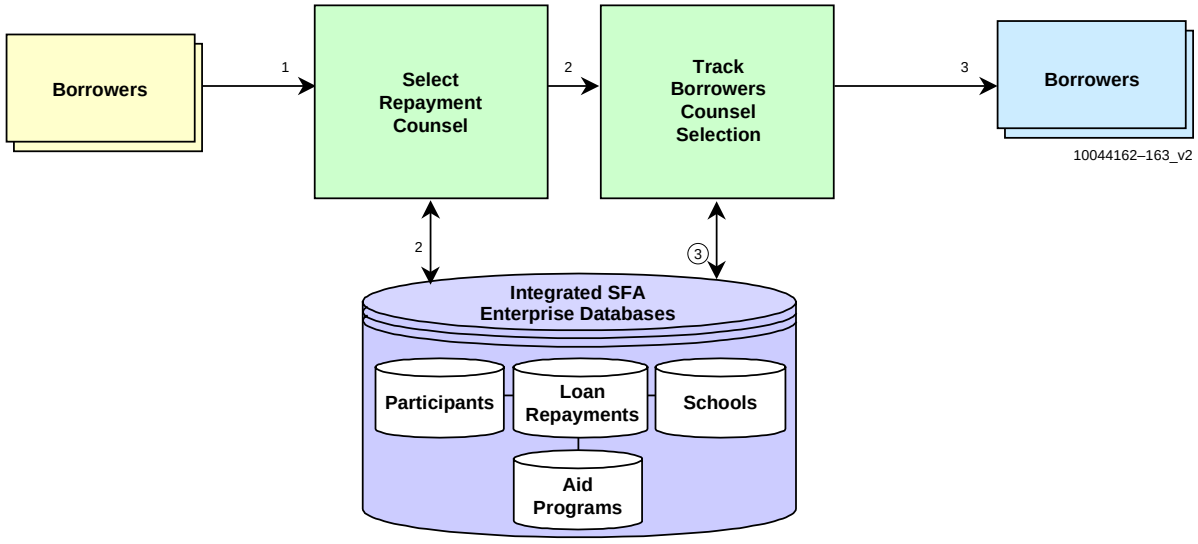
The subprocess flow illustrated in Figure IV.B-34 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Select Repayment Option subprocess. It notifies the borrower of options available to repay loan(s) and allows the borrower to select a repayment plan. A borrower may pay any part of the outstanding balance in a lump sum payment and the remaining balance in regular installments or may make regular installments on the entire outstanding balance.

LR-03 Manage Aid Status

The subprocess flow illustrated in Figure IV.B-35 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Aid Status subprocess. It processes deferments, forbearances, discharges, cancellations, and loan transfers of Direct Loans. In addition, it monitors repayment history to update loan status to delinquency and/or default and, based on status updates, converts loans to repayment status. This subprocess also supports deferments, discharges, forbearances, and cancellations of FFELP loans by providing the borrower with appropriate information.

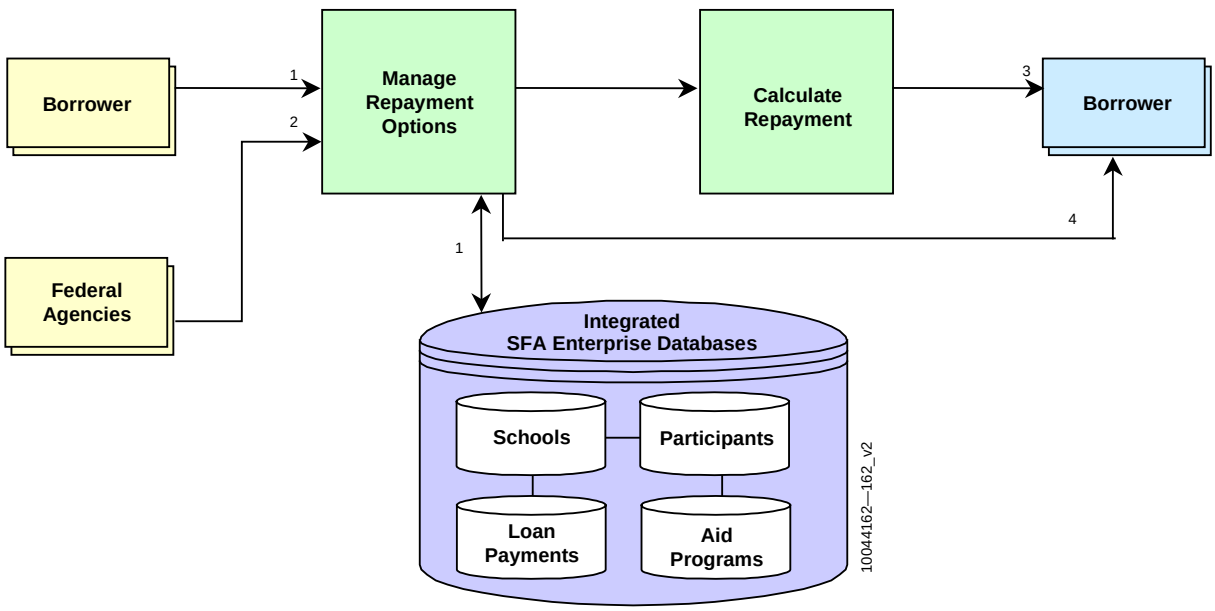
LR-04 Process Loan Payment and Overpayment

The subprocess flow illustrated in Figure IV.B-36 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Process Loan Payment and Overpayment subprocess. It processes repayment information on all loans held by ED and refunds borrowers in case of overpayment of all final installments on Direct Loans.



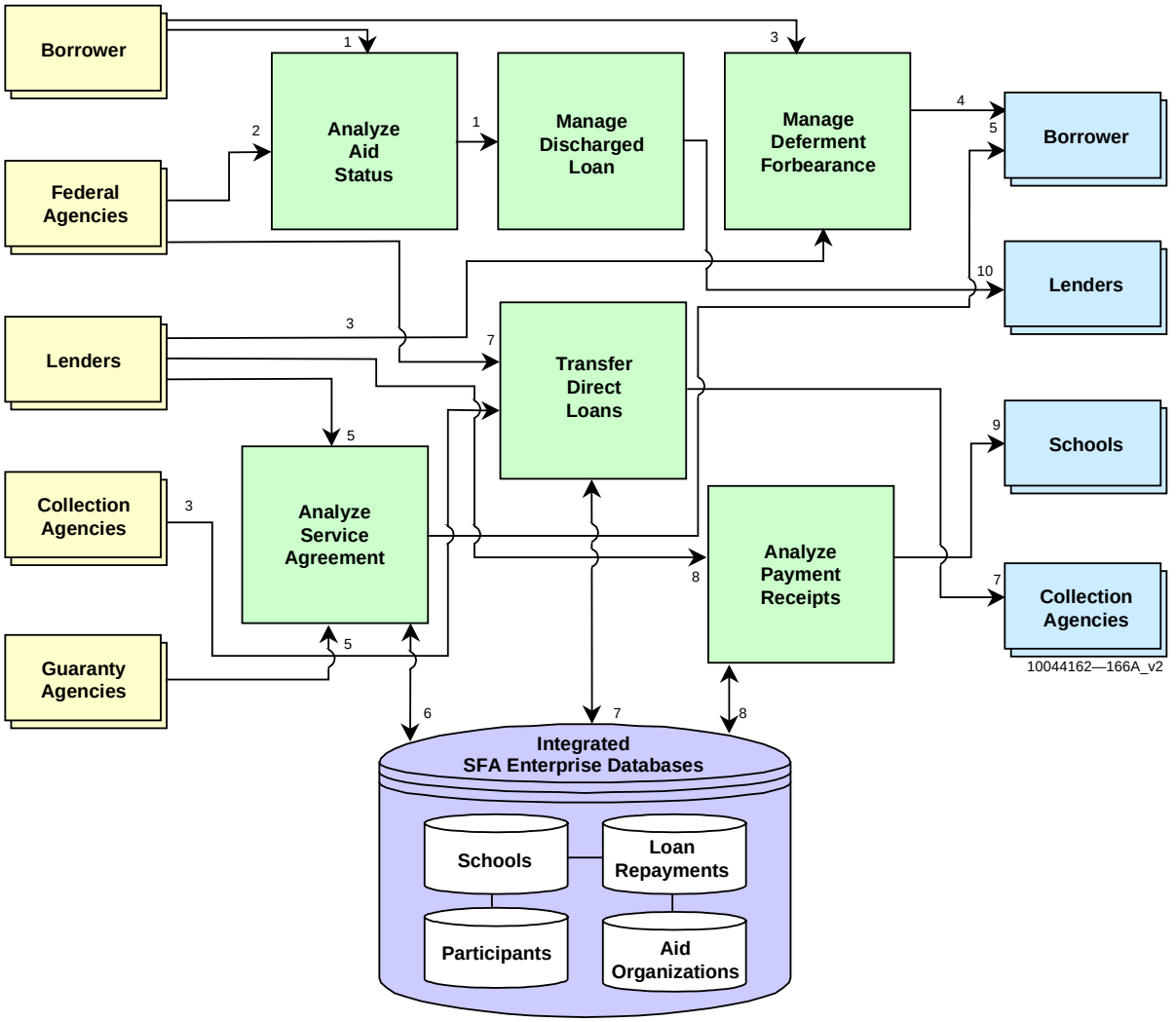
01 Repayment counsel request options
02 Repayment counsel selection
03 Repayment counsel terms and conditions

Figure IV.B-33. LR-01 Manage Repayment Counseling



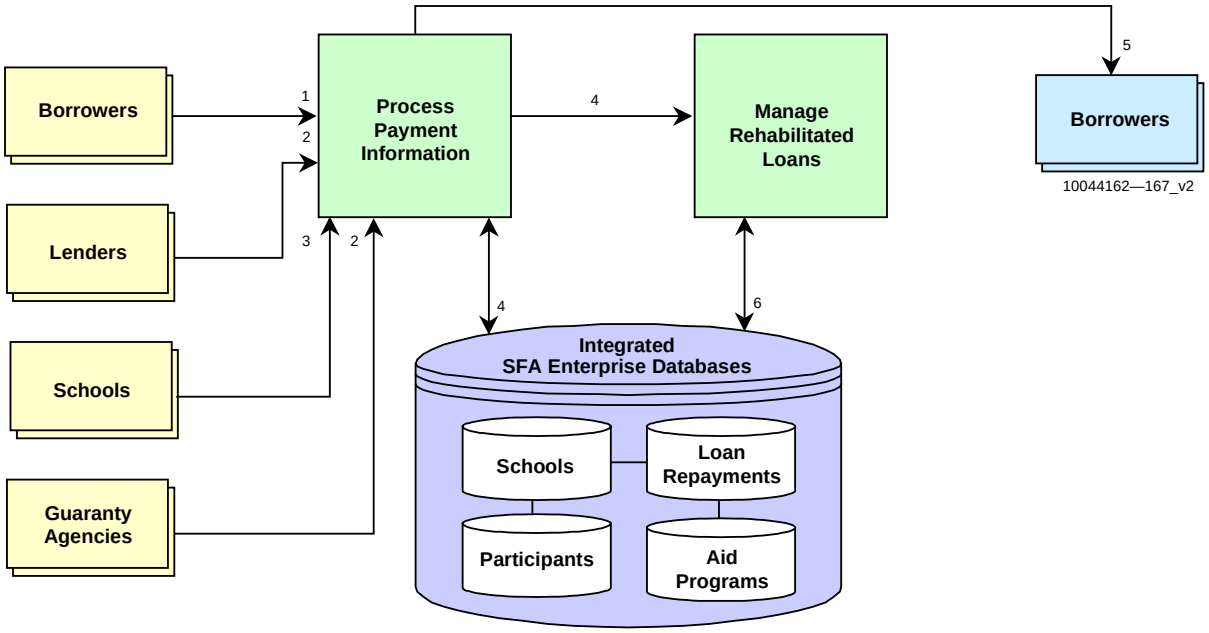
01 Repayment options selection
02 Income verification details
03 Repayment information (schedule, automatic payroll, consolidate billing statements)
04 Electronic debt advice

Figure IV.B-34. LR-02 Select Repayment Option



01 Aid status changes
02 Unemployment status, active duty military status
03 Deferment/forbearance details
04 Deferment eligibility details
05 Service agreement details
06 Policy and procedure details
07 Defaulted loans details
08 Loan payment history
09 Delinquency details
10 Loan discharge details

Figure IV.B-35. LR-03 Manage Aid Status



01 Payments
02 Loan balance information
03 Grant overpayment details
04 Accounts receivable details
05 Refunds
06 Rehabilitated loan data

Figure IV.B-36. LR-04 Process Loan Payment and Overpayment

LR-05 Process Billing Information

The subprocess flow illustrated in Figure IV.B-37 depicts business interactions performed by external agents of the SFA business channels and SFA within the Process Billing Information subprocess. It handles requests for billing documentation (includes bills/statements) and for billing date changes for loans held by ED.

LR-07 Manage Consolidation Loan Information

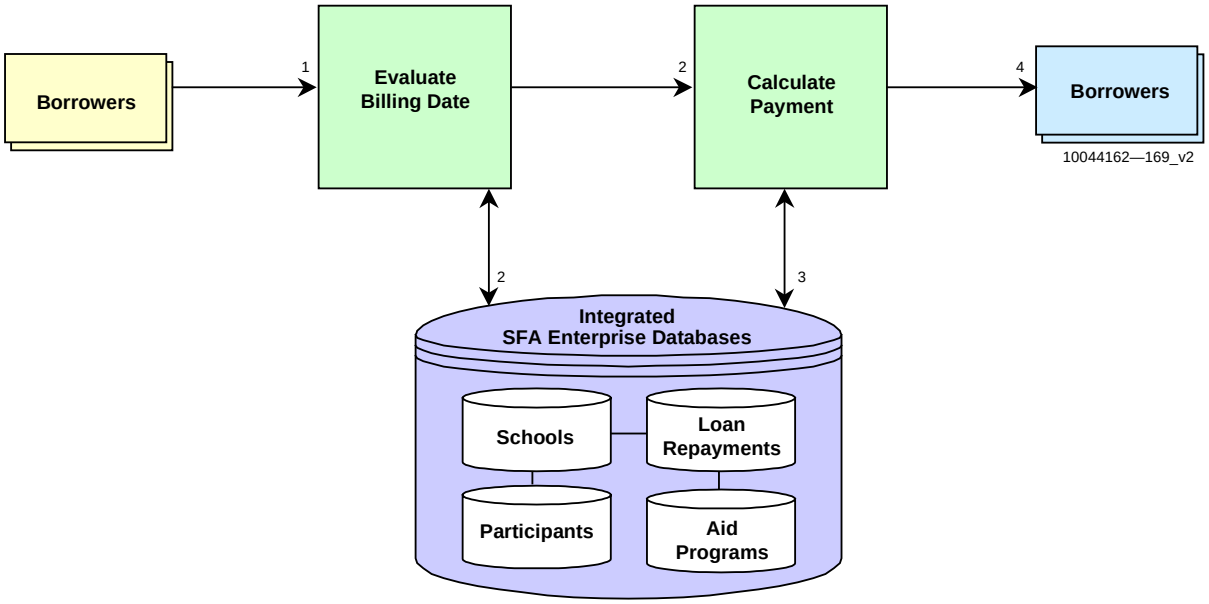
The subprocess flow illustrated in Figure IV.B-38 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Consolidation Loan Information subprocess. It manages the flow of information necessary to consolidate a borrower's separate loans. The information includes available consolidation agents, consolidation agent decisions, previous loan information, and loan payoff information.

LR-09 Track Borrowers

The subprocess flow illustrated in Figure IV.B-39 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Track Borrowers subprocess. It provides the Department of Education with a means to maintain delinquent accounts through credit bureau reporting and skip tracing. The credit bureau reporting functionality selects delinquent accounts and reports those accounts to the appropriate credit bureau on a monthly basis. The system also maintains current demographic information through the generation of skip trace requests on a periodic basis. Requests are also accepted from external sources, such as guaranty agencies, schools, and lenders. Updated information is retrieved from state and federal agencies, including the United States Postal Service and the Internal Revenue Service.

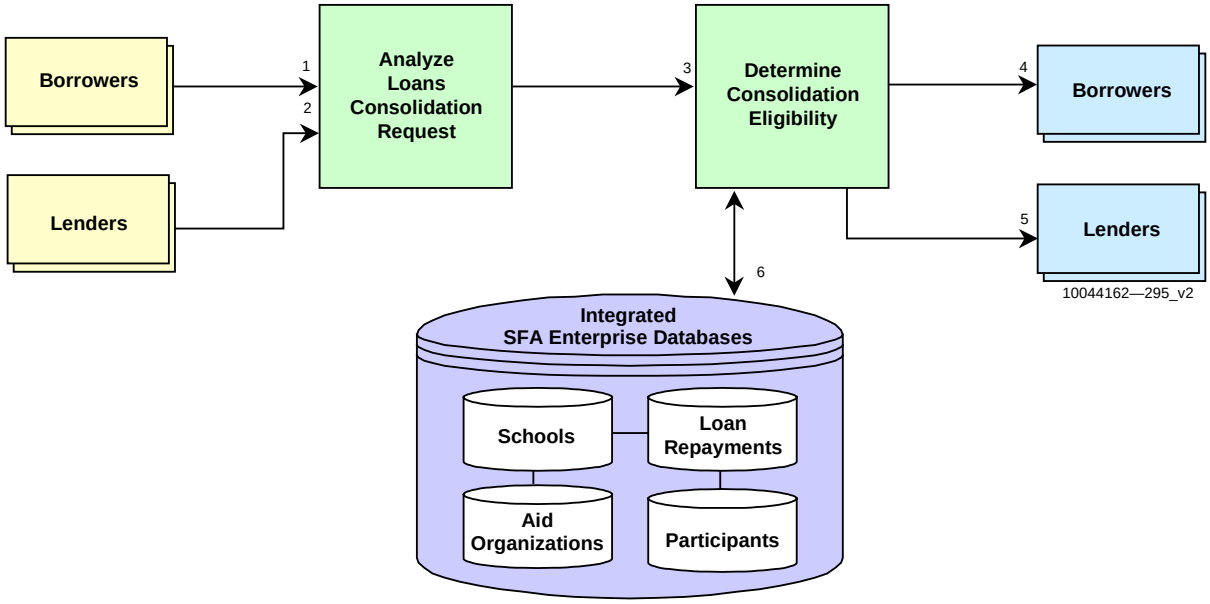
LR-10 Assign Defaulted Loan

The subprocess flow illustrated in Figure IV.B-40 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Assign Defaulted Loan subprocess. It monitors (at specific periods) defaulted loans and assigns them to ED and/or collection agencies as appropriate.



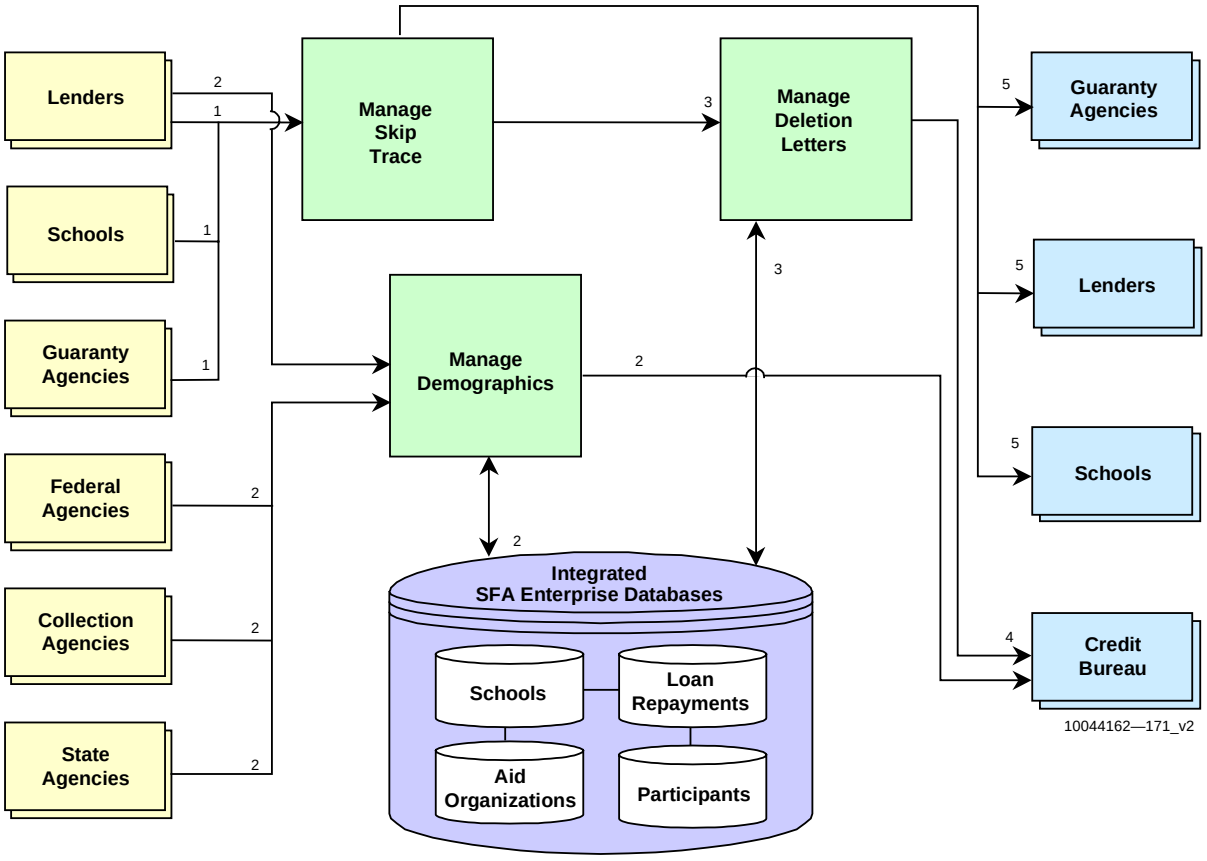
01 Billing date change request
02 Billing details
03 Payment details
04 Disclosure statements, financial statements, bills, and statements

Figure IV.B-37. LR-05 Process Billing Information



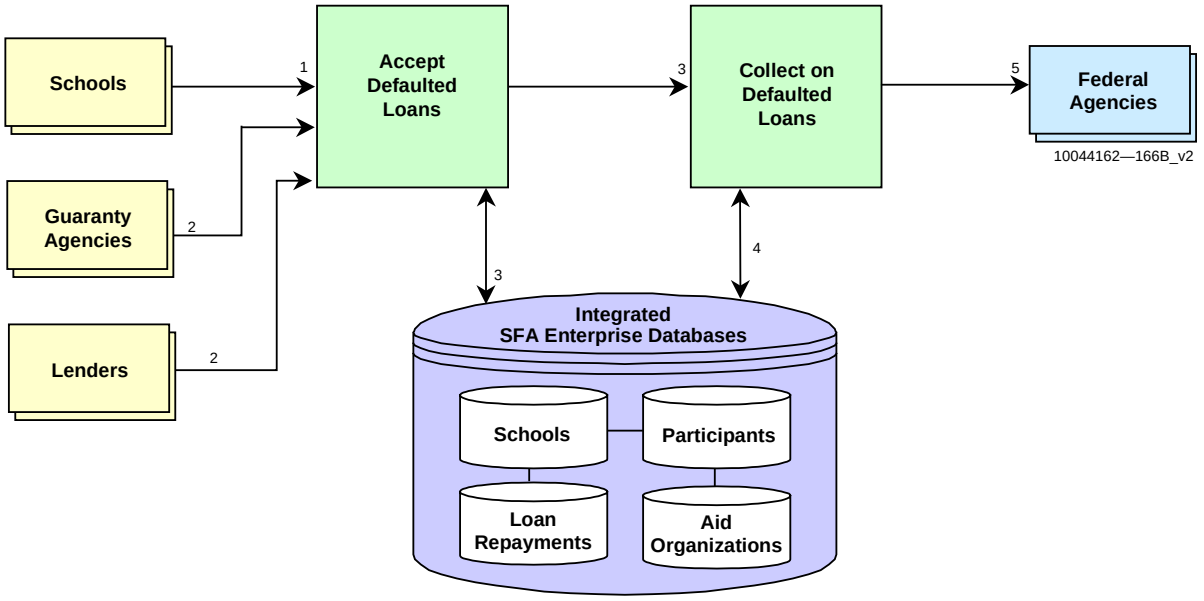
01 Loan consolidator choice
02 Loan consolidation request
03 Loan consolidation status
04 Eligibility results
05 Consolidation candidates
06 Loan consolidation details

Figure IV.B-38. LR-07 Manage Consolidation Loan Information



01 Skip trace request
02 Demographic details
03 Skip trace details
04 Borrowed details
05 Skip trace results

Figure IV.B-39. LR-09 Track Borrower



01 Defaulted loans and grant details
02 Defaulted loan details
03 Account acceptance
04 Loan transactions
05 Defaulted loan alerts

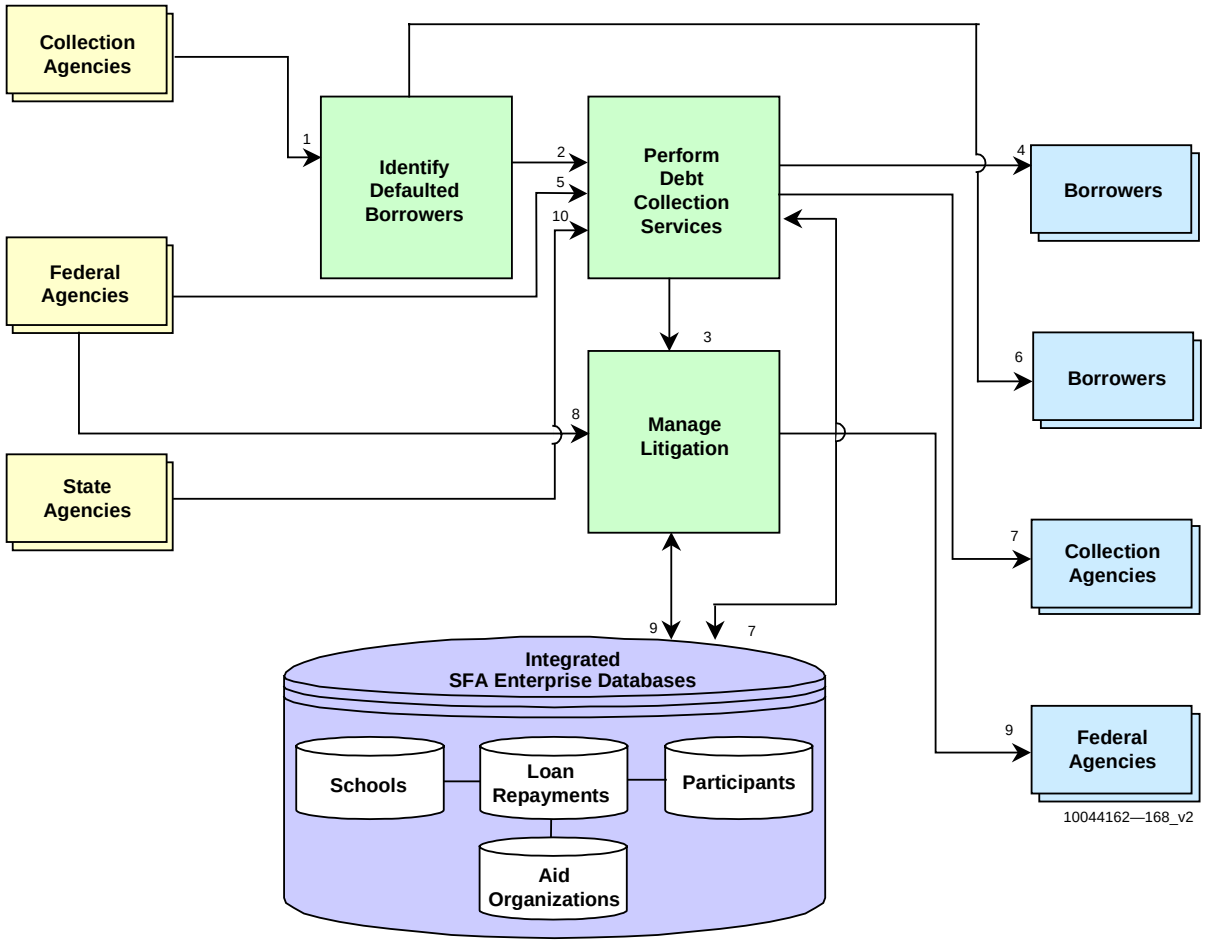
Figure IV.B-40. LR-10 Assign Defaulted Loan

LR-12 Manage Debt Collection

The subprocess flow illustrated in Figure IV.B-41 depicts business interactions performed by external agents of the SFA business channels SFA internals within the Manage Debt Collection subprocess. It manages all transactions related to identifying defaulted loans, billing defaulted borrowers and processing repayments received from defaulted borrowers for those loans assigned to ED.

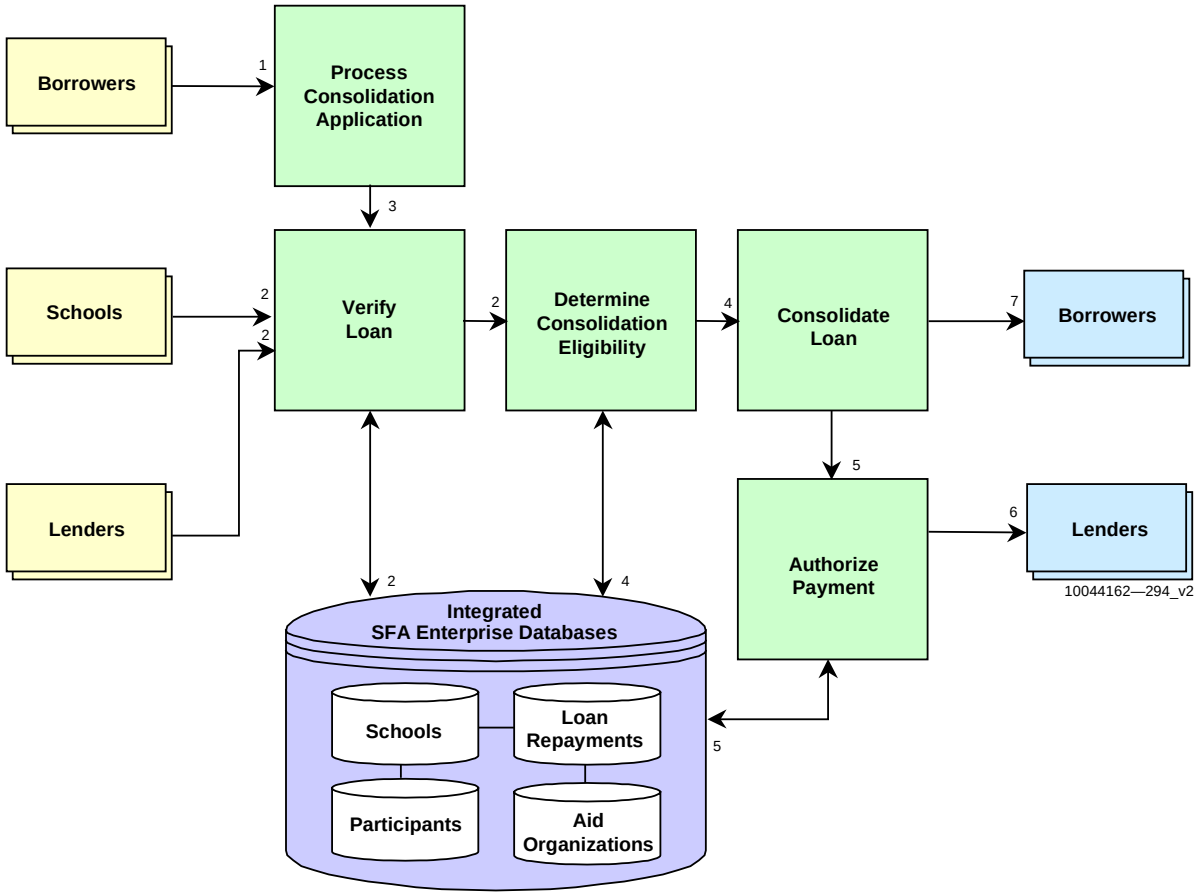
LR-16 Process Consolidated Direct Loan

The subprocess flow illustrated in Figure IV.B-42 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Process Consolidated Direct Loan subprocess. It manages the receipt, processing, and certification of loan consolidation requests. The output of this subprocess triggers the Financial Partner Services financial transaction, which pays off lenders of the underlying loans for consolidation and results in a new origination record for the consolidated direct loan.



01 Recommendations
02 Defaulted loan details
03 Accounts referred for litigation
04 Wage garnishment details
05 Employment information details
06 Notification of default
07 Debt collection details
08 Adjusted payment terms
09 Legal council action
10 Income refund details

Figure IV.B-41. LR-12 Manage Debt Collection



01 Consolidated application
02 Loan balance details
03 Application details
04 Consolidation loans details
05 Payment details
06 Consolidate loan payment
07 Promissory note, disclosures

Figure IV.B-42. LR-16 Process Consolidated Direct Loan

School Services – Program Eligibility Subprocess Flows

SS-01 Determine School Eligibility

The subprocess flow illustrated in Figure IV.B-43 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Determine School Eligibility subprocess. It analyzes and evaluates domestic and foreign schools applications for aid programs. It notifies schools of the determination of their eligibility and certification to participate in Title IV programs. Statutory eligibility, administrative capability and financial capability are key determinants of school eligibility.

SS-02 Set School Participation Parameters

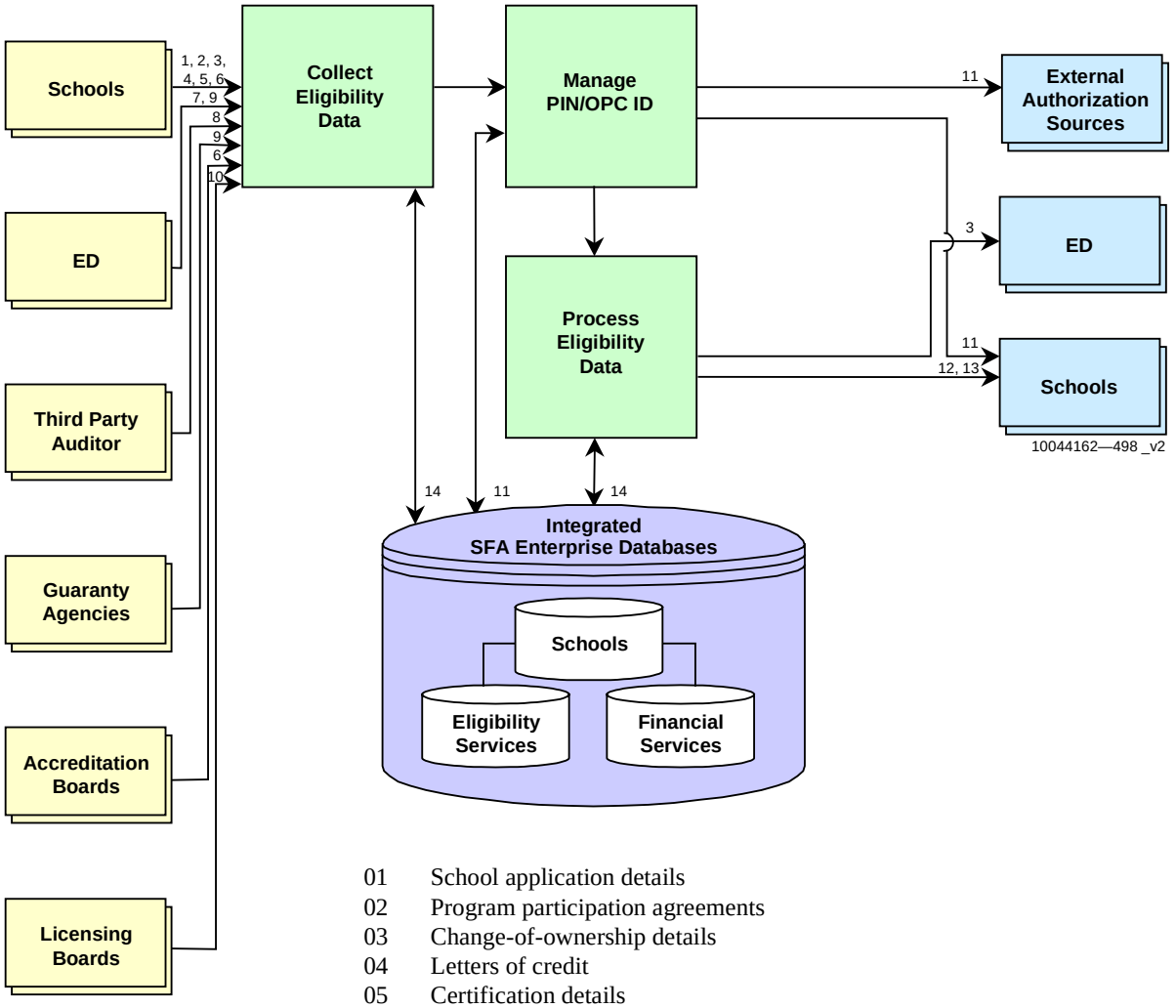
The subprocess flow illustrated in Figure IV.B-44 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Set School Participation Parameters subprocess. It determines the parameters under which domestic and foreign schools may participate in Title IV programs, related pilots, experimental demonstrations and other special programs based on a variety of dimensions.

SS-03 Discontinue School Eligibility

The subprocess flow illustrated in Figure IV.B-45 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Discontinue School Eligibility subprocess. It administers the transactions related to discontinuing or deactivating a domestic or foreign schools participation in Title IV programs. Eligibility may be discontinued voluntarily by program, by school or based on administrative actions taken by the Department.

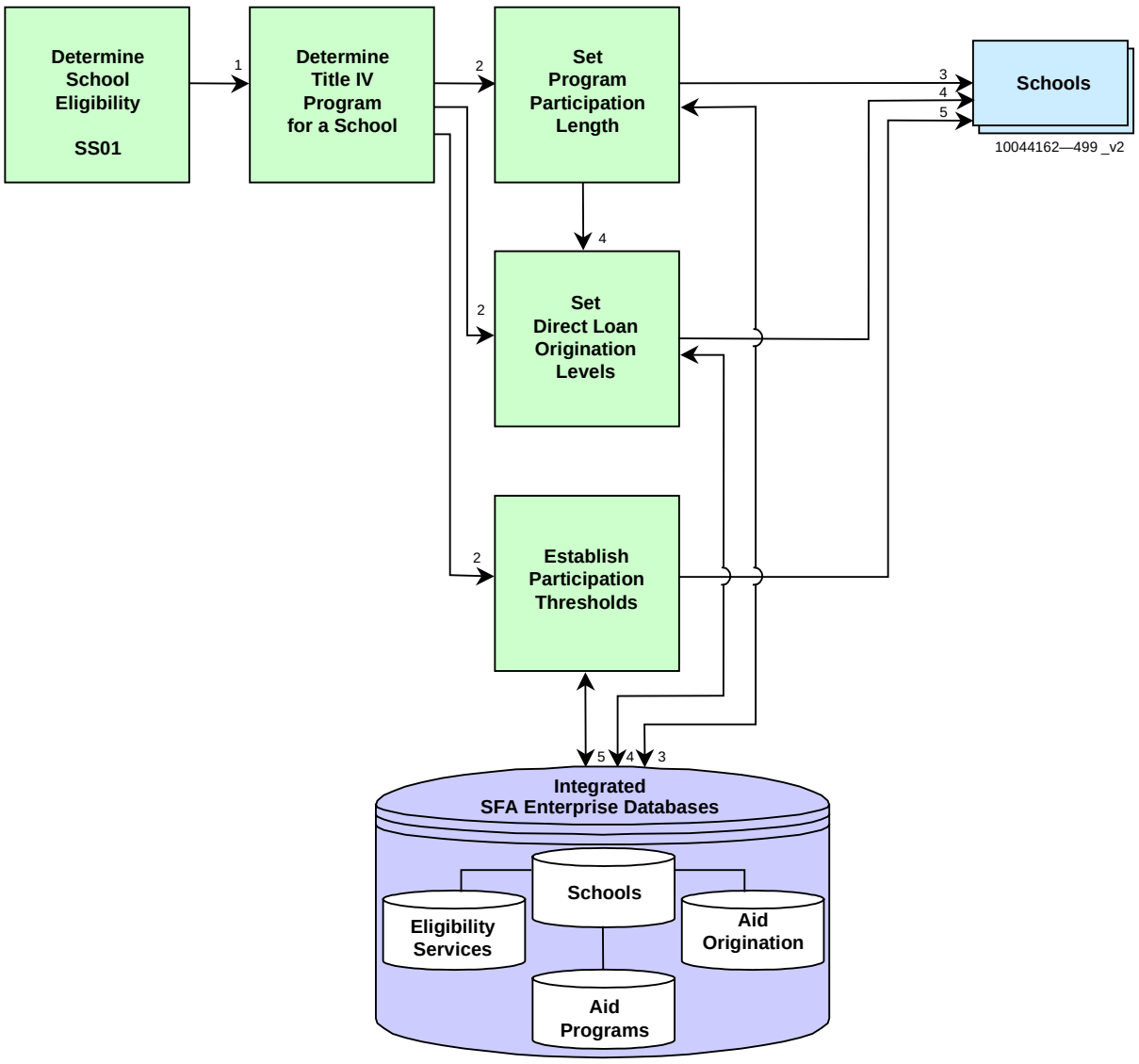
SS-04 Take Action on Performance

The subprocess flow illustrated in Figure IV.B-46 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Take Action on Performance subprocess. It determines the appropriate action or assistance needed to address positive and negative performance issues for domestic and foreign schools. Actions can take a number of forms from providing technical assistance and tools to imposing fines, eligibility termination or debarment. Performance actions will place an increasing emphasis on preventative measures to help schools correct performance issues before strong sanctions are necessary.



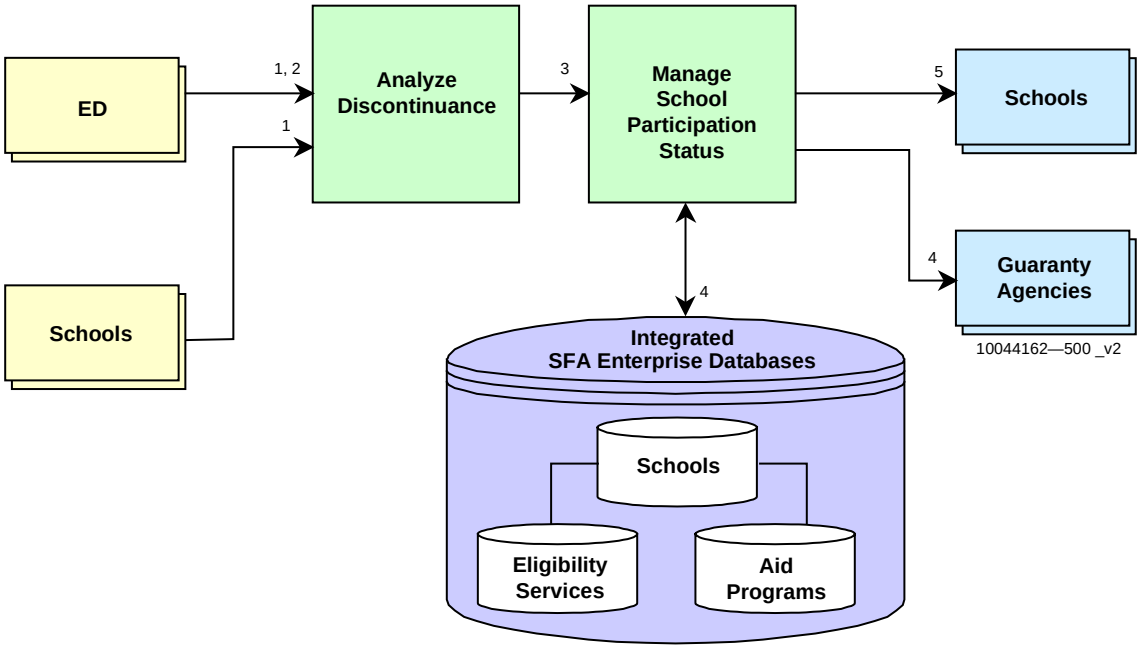
01 School application details
02 Program participation agreements
03 Change-of-ownership details
04 Letters of credit
05 Certification details
06 Accreditation details
07 Request for letters of credit
08 Audit information
09 Audit review results
10 Licensing details
11 PIN/OPC ID
12 Eligibility status
13 Program acceptance package
14 Eligibility details

Figure IV.B-43. SS-01 Determine School Eligibility



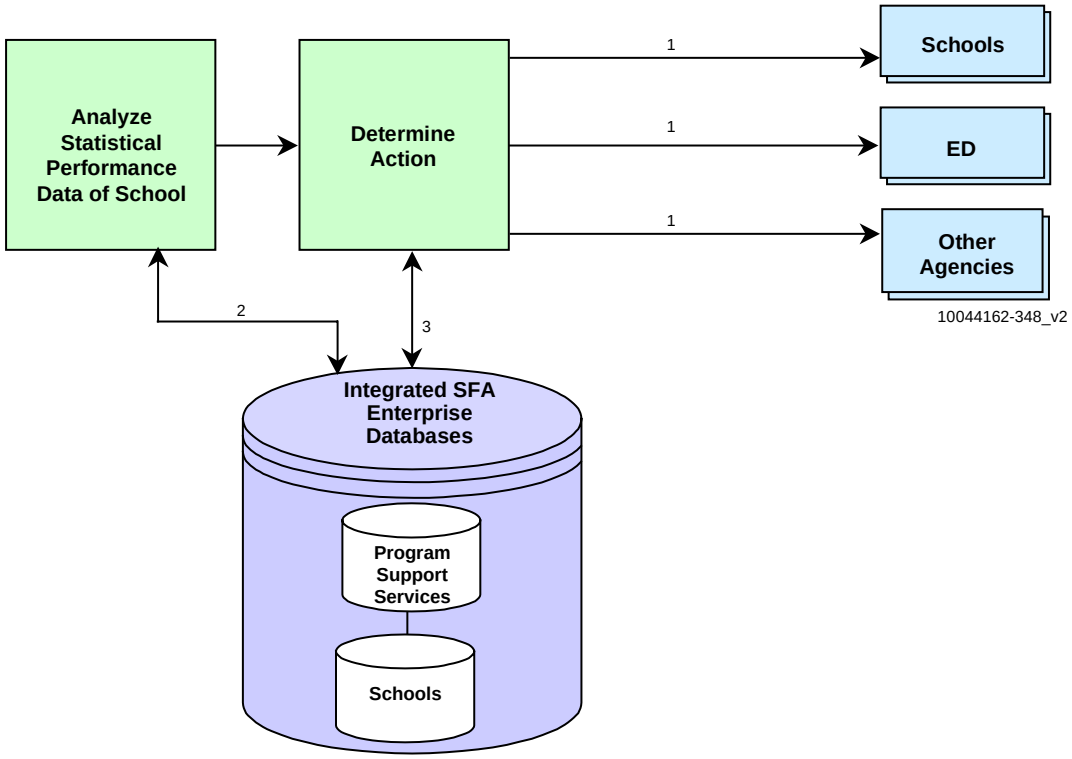
01 School parameter details
02 Program school details
03 Program participation details
04 Direct loan origination levels
05 Participation threshold defaults

Figure IV.B-44. SS-02 Set School Participation Parameters



01 Requested to discontinue participation request
02 Administrative actions
03 Discontinuance determination
04 Eligibility details
05 Start/stop payment orders

Figure IV.B-45. SS-03 Discontinue School Eligibility



01 Action (sanctions, disbarment, suspension)
02 Access/update performance data
03 Access performance of school

Figure IV.B-46. SS-04 Take Action on Performance

School Services – Program Support Subprocess Flows

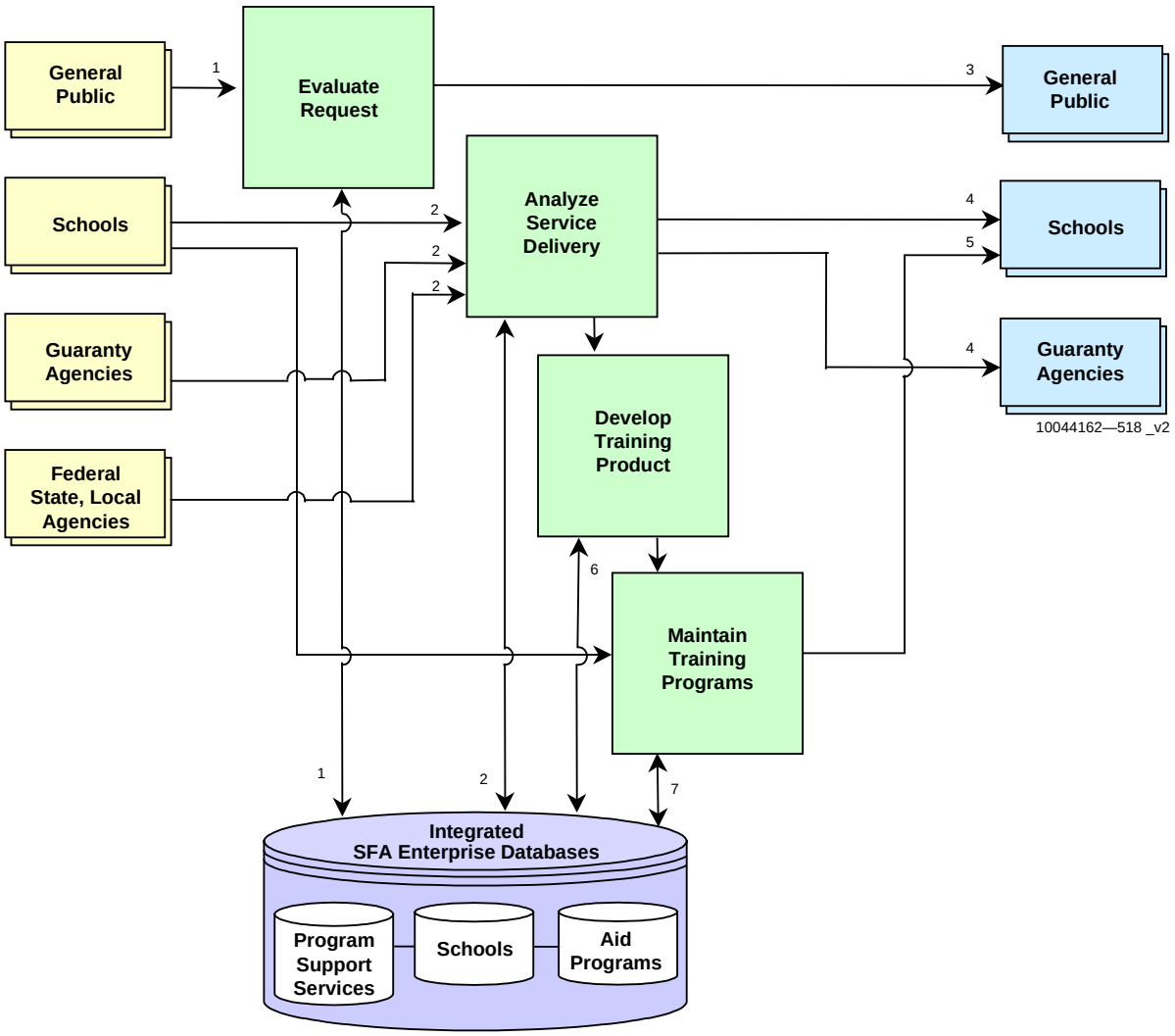
"It is important to note that the term, "**Program support**," refers to **both** the support of fiscal integrity throughout the Title IV funding process **and** the support, via superlative customer service, of our school partners who deliver the funds to students. If sound fiscal management is not pursued actively by all parties, the reputation and future of the Title IV programs are put at risk. If schools are not given the right help at the right time, the likelihood that students will persist in enhancing their future through education is put at risk. School Services must pursue both objectives simultaneously."

SS-05 Develop and Deliver Information, Training and Technical Assistance

The subprocess flow illustrated in Figure IV.B-47 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Develop and Deliver Information, Training and Technical Assistance subprocess. It manages information development and distribution, training and technical assistance with domestic and foreign schools. Systematic training efforts will focus on educating financial aid professionals and other school administrators to better understand and use the resources available to them from SFA. Training efforts and guidance are also provided to state accrediting agencies and others who deliver service to schools as part of the financial aid system.

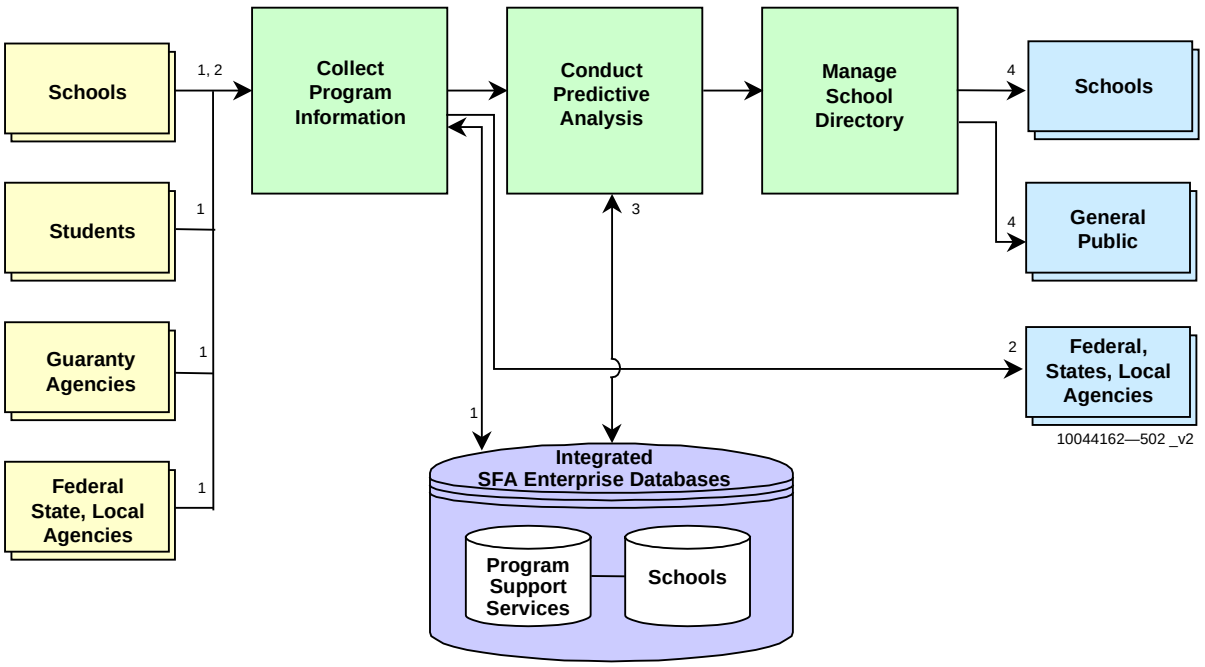
SS-06 Maintain School and Program Information and Status

The subprocess flow illustrated in Figure IV.B-48 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Maintain School and Program Information and Status subprocess. It collects and maintains information related to the participated domestic and foreign schools and Title IV programs administered at the school level. The information includes, but is not limited to, school application information, program reviews, school audits, cohort default rates, experimental sites, financial analysis, addresses, school officials, financial aid officials, school closure, quality assurance data and other pertinent administrative and financial data. The subprocess provides an interface and access to school related data that resides outside of SFA and outside of ED. This information is accessed and used to conduct predictive analysis related to school performance.



01 School performance request
02 Service delivery details, feedback on training programs
03 School performance report
04 Action plans for improving service delivery
05 Training
06 Training product details
07 Training program details

Figure IV.B-47. SS-05 Develop and Deliver Information, Training, and Technical Assistance

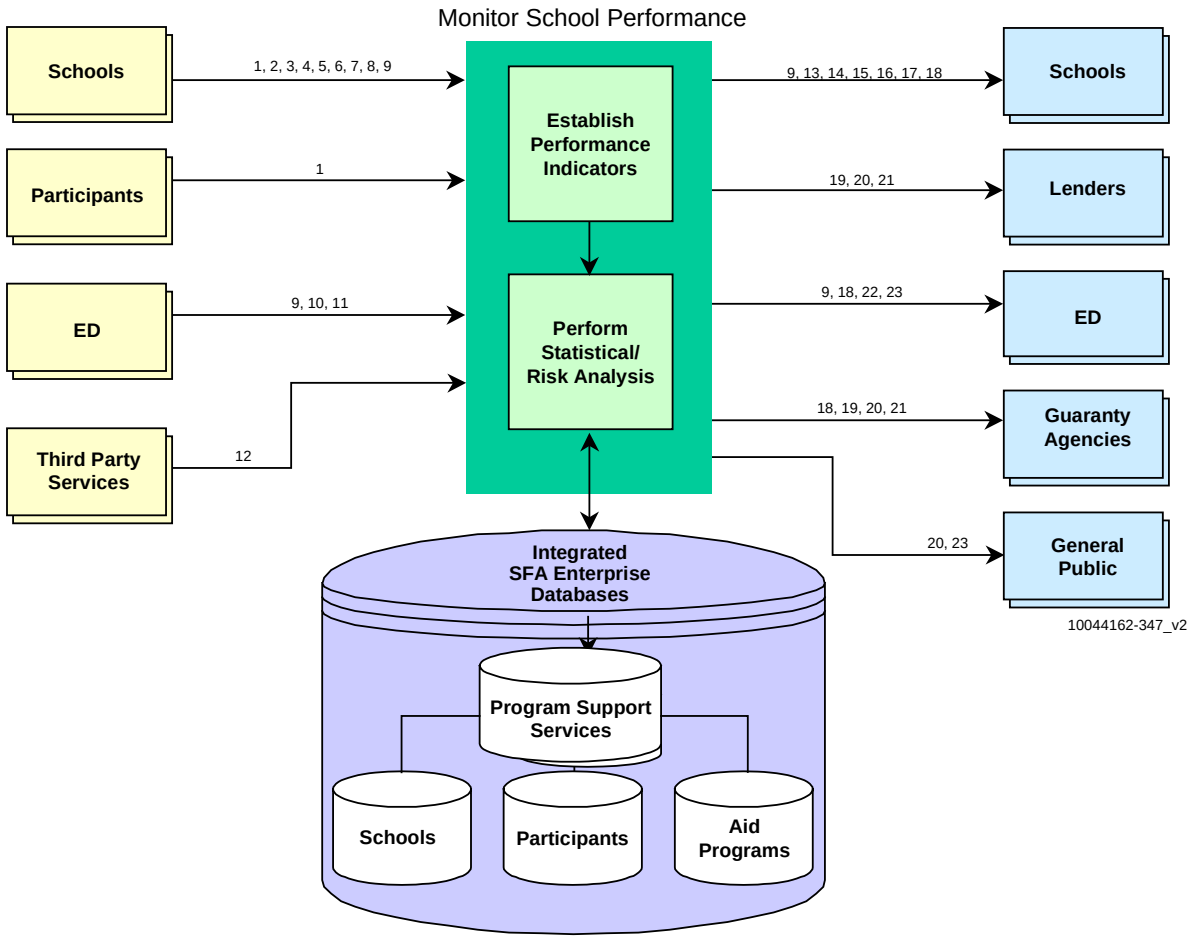


01 School closure details
02 FISAP details
03 GSA, Census, INS, VA, IRS, details
04 School directory

Figure IV.B-48. SS-06 Maintain School and Program Information and Status

SS-07 Monitor School Performance

The subprocess flow illustrated in Figure IV.B-49 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Monitor School Performance subprocess. It reviews and analyzes internal and external data related to domestic and foreign school performance across a number of administrative, financial and outcome-based performance indicators. The types of analysis conducted include financial and risk management analysis, program and audit reviews, cohort default rate analysis, screening for special program eligibility (i.e., demonstration programs, pilots) and analysis which feeds the re-certification process (included in SS-03, Program Eligibility). Fundamental to effective school performance monitoring is utilization of predictive risk analysis tools, and profiling capabilities that will alert SFA to potential financial administrative and consumer protection risks for a particular school and across the peer group of schools based on pre-determined performance flags/indicators, including the proactive utilization of technical assistance as a positive indicator.



01	Feedback on services	13	Appeal status
02	Response to review reports	14	Upcoming program review
03	SFA/A-133 and OIG audit data	15	Program review reports
04	Nondefault rate appeals	16	FPRDL
05	Student default information	17	Final audit determination letters
06	Appeal for calculated default rate	18	School cohort default rates
07	Draft cohort default rate challenges	19	Program, financial oversight data
08	Cohort default rate appeals	20	Program review reports
09	LST appeals, status, notices	21	Audit data
10	School cohort default rate appeal status	22	Default/nondefault rate appeals
11	Audit results	23	Results of feedback on services
12	SFA/A-133 and OIA audit data		

Figure IV.B-49. SS-07 Monitor School Performance

SS-08 Allocate Funds (Campus-Based) and Allowances (Pell and Campus-Based)

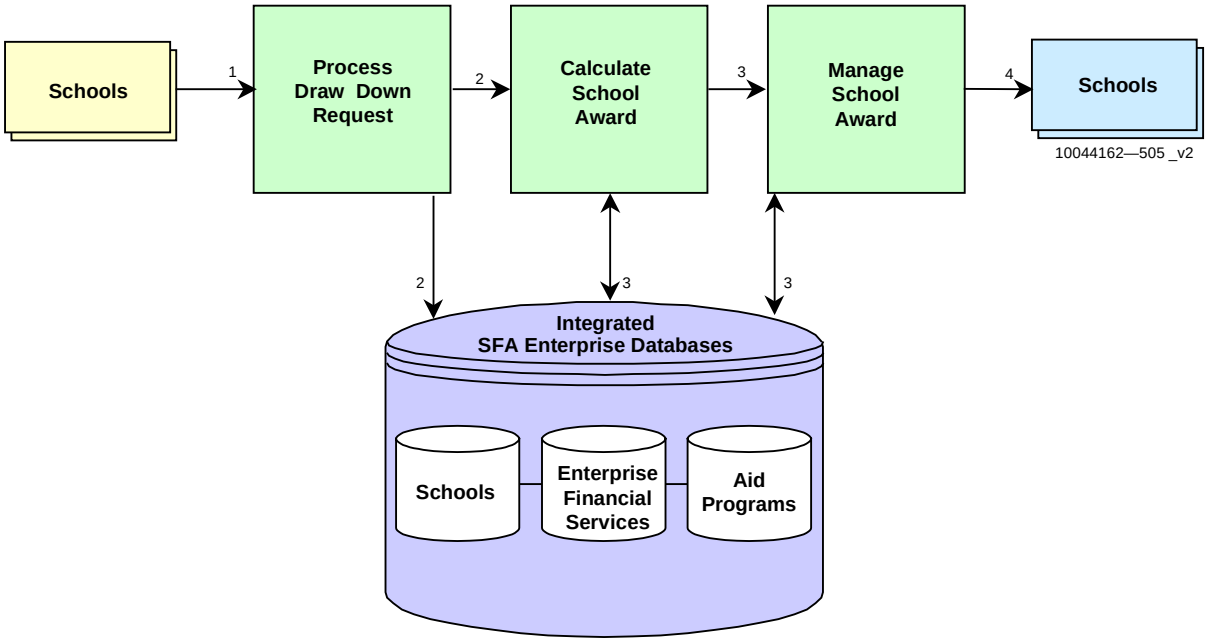
The subprocess flow illustrated in Figure IV.B-50 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Allocate Funds and Allowances subprocess. It simulates, calculates, and allocates the authorization amount to be awarded to a school for each of the Campus-Based Programs, and generates an award notice to be sent to the school. It reallocates unexpected funds to schools that have a shortfall in Campus-Based funds.

SS-09 Manage Authorizations (Pell)

The subprocess flow illustrated in Figure IV.B-51 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Authorizations (Pell) subprocess. It determines the initial authorization amount and notifies each school participating in the Pell Grant program of its initial authorization amount. The authorization amount is the maximum aggregate amount that each institution is allowed to distribute in the form of Pell Grant payments, and is calculated at the beginning of each program year. This activity monitors and adjusts the authorization levels for each school to ensure schools have sufficient funds to issue Pell Grants.

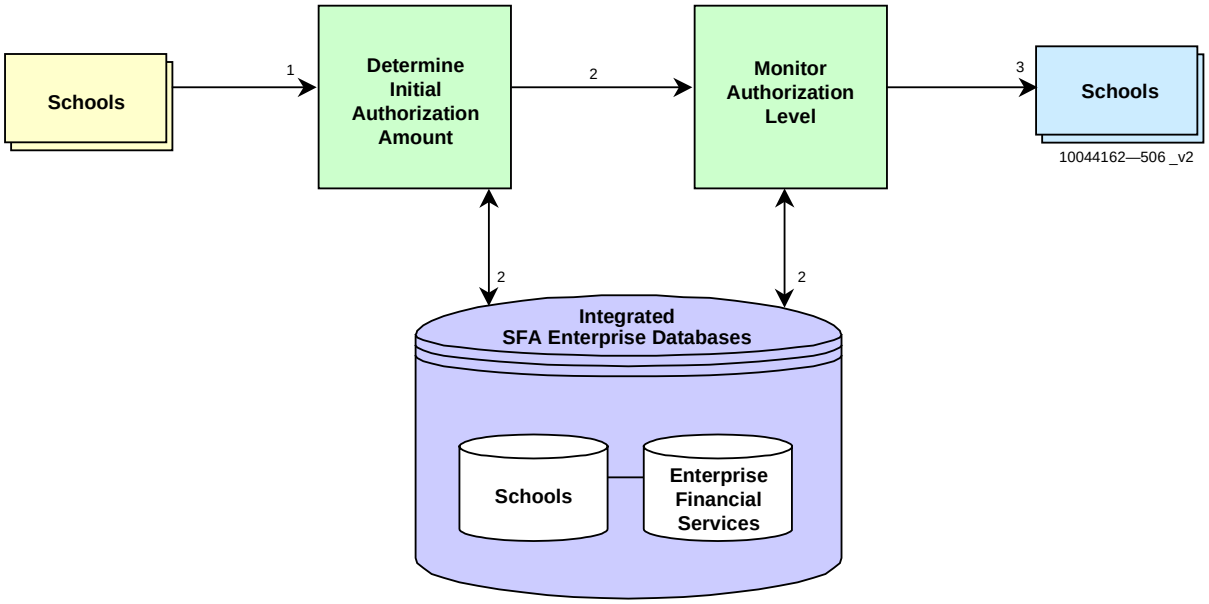
SS-10 Execute Financial Adjustments

The subprocess flow illustrated in Figure IV.B-52 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Execute Financial Adjustments subprocess. It executes financial adjustments throughout the year and as part of year-end accounting closeout procedures to ensure payment and expenditure records reconcile. Adjustments may be necessary due to reimbursements to schools, reconciliation of overpayments/underpayments to schools, fund offsets and cancellation of funding.



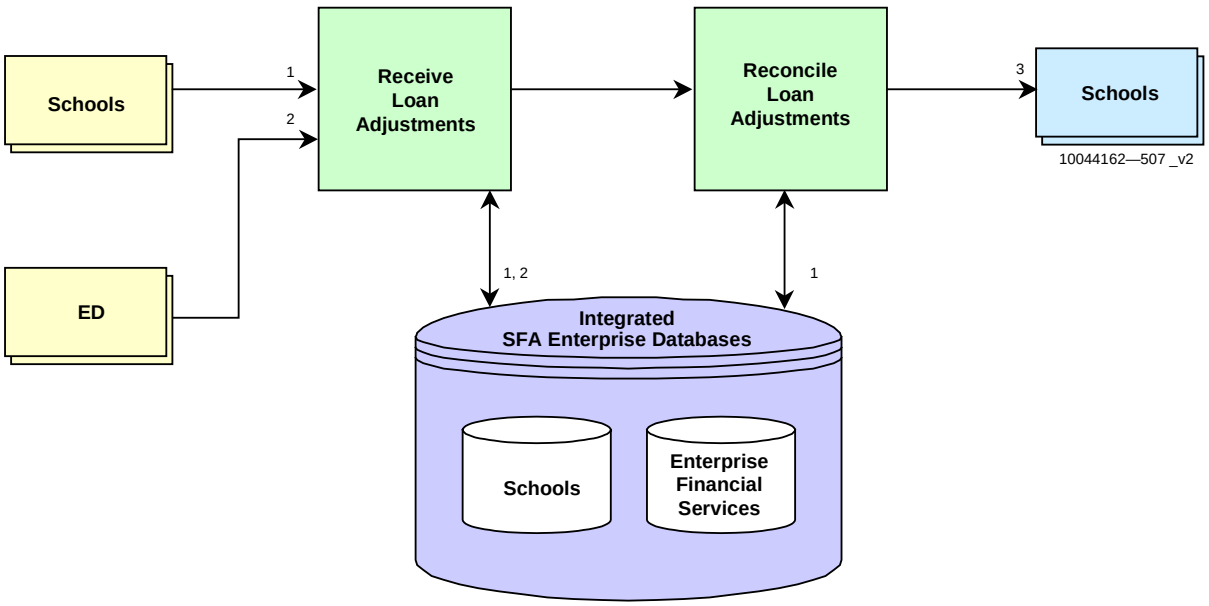
01 Draw down request
02 Draw down details
03 School award details
04 Notification of authorization amount details

Figure IV.B-50. SS-08 Allocate Funds (Campus-Based) and Allowances (Pell and Campus-Based)



01 Draw down request
02 Draw down details
03 Pell grant authorization notification

Figure IV.B-51. SS-09 Manage Authorizations (Pell)



01 Perkins loans cancellation details
02 Low-income school information details
03 Financial statements

Figure IV.B-52. SS-10 Execute Financial Adjustments

School Services – Aid Origination and Disbursement Subprocess Flows

OD-01 Edit Common Origination and Disbursement Records

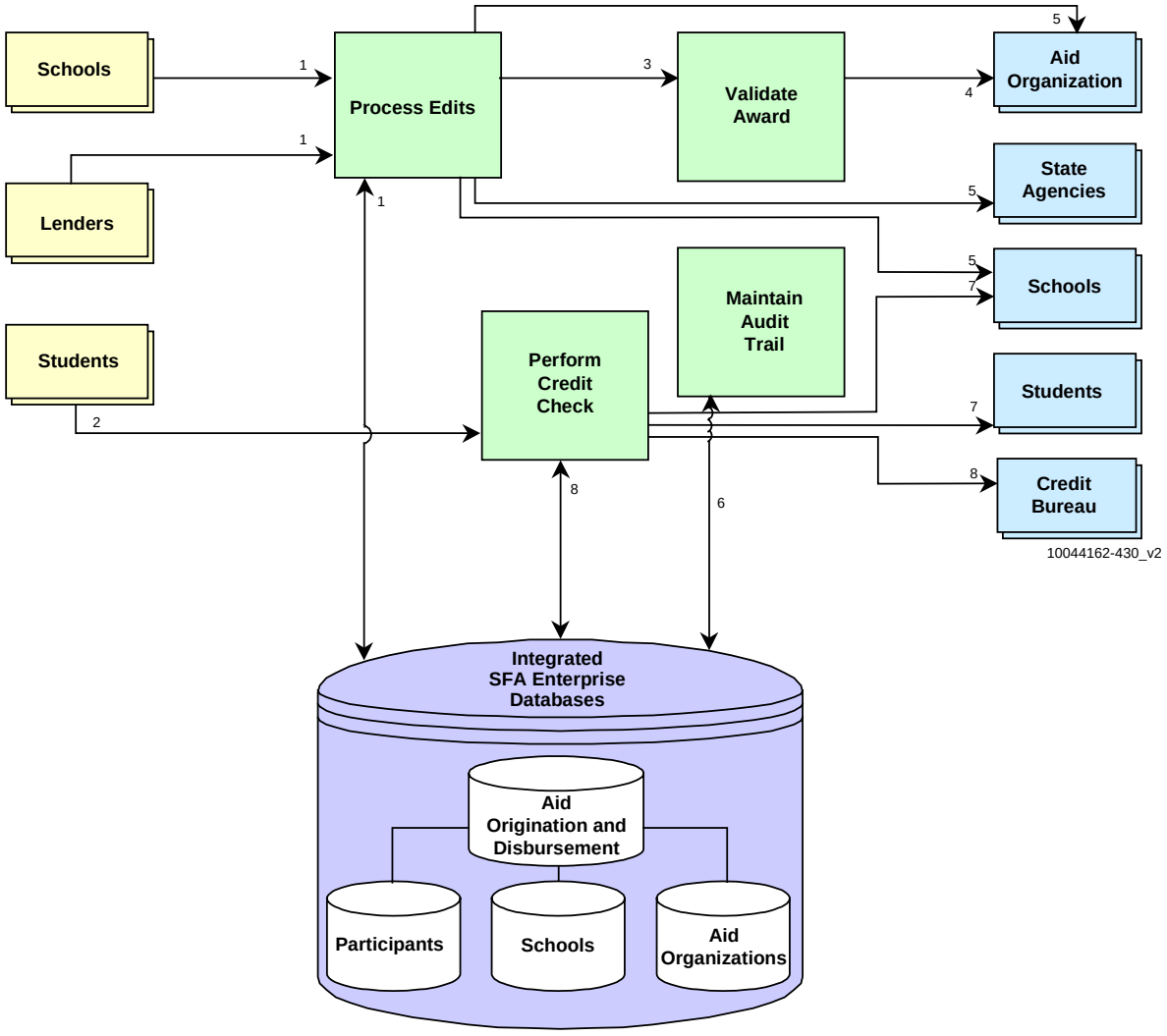
The subprocess flow illustrated in Figure IV.B-53 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Edit Common Origination Records subprocess. The subprocess flow illustrated in Figure IV.B-54 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Edit Common Disbursement Records subprocess

OD-03 Process Borrower Authorizations

The subprocess flow illustrated in Figure IV.B-55 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Process Borrower Authorizations subprocess. It receives, stores, and distributes borrower authorizations. Borrower authorizations are necessary before any funds are disbursed to the school.

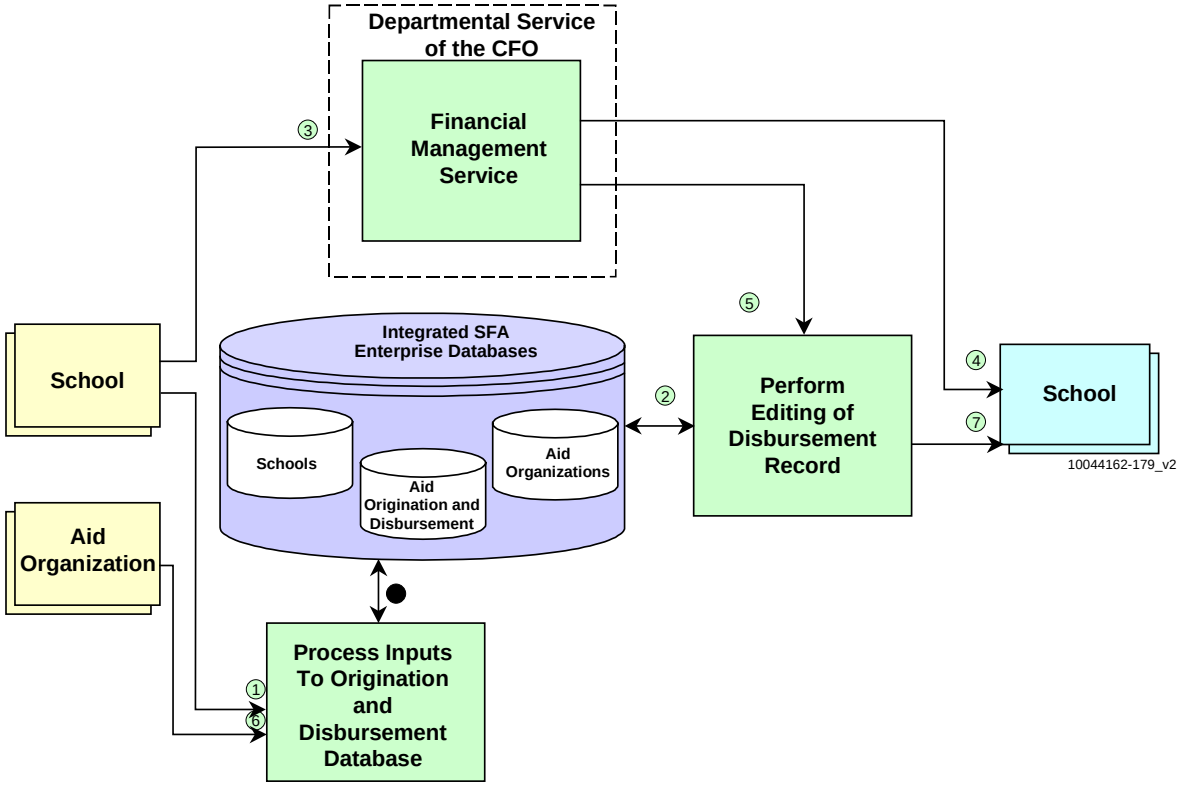
OD-04 Authorize Payments to Schools

The subprocess flow illustrated in Figure IV.B-56 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Authorize Payments to Schools subprocess. It authorizes invoice and schedules disbursements to schools based on valid incoming origination and/or disbursement records. For the invoice method, the disbursement is authorized based on valid disbursement records (invoices) submitted by schools. For the scheduled method, a disbursement is authorized based on the on scheduled disbursement date in the aid origination record.



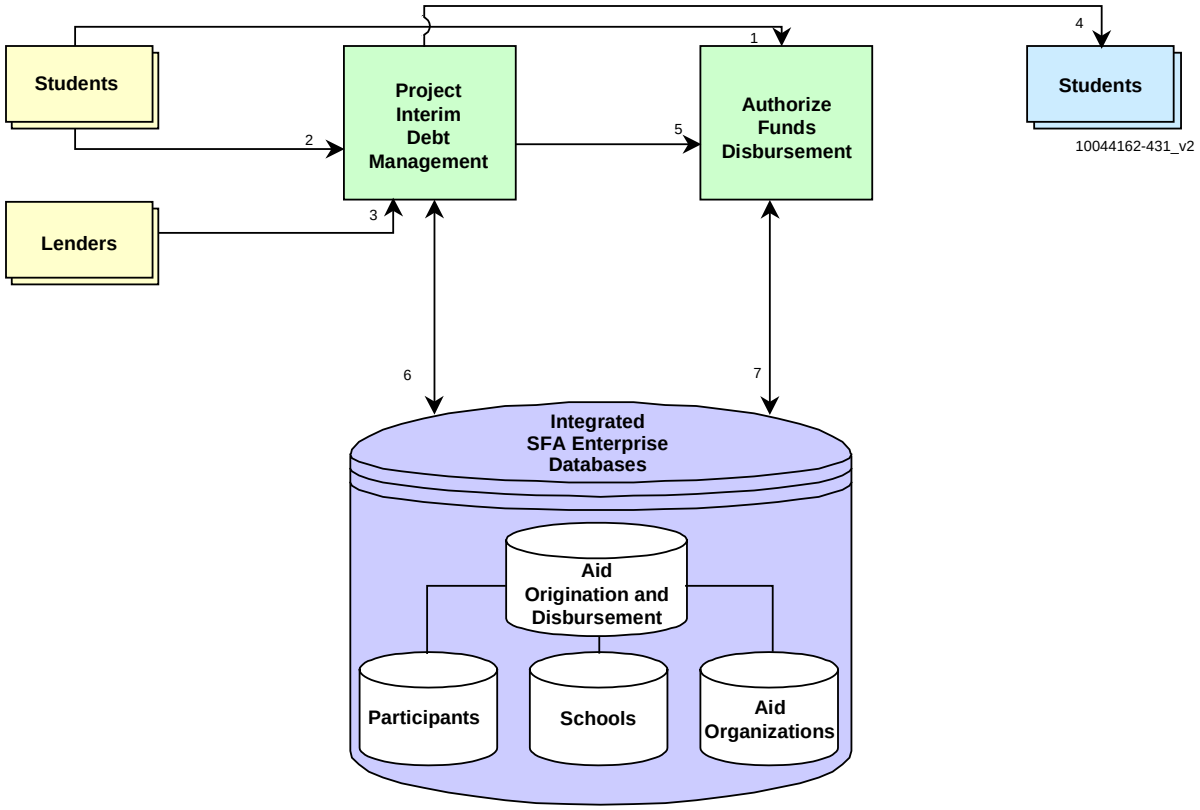
01 Origination disbursement adjustment and cancellation
02 Credit check request
03 Award origination record
04 Accept/reject award origination
05 Results of edit applied
06 Audit trail
07 Credit check result
08 Student demographic and loan data

Figure IV.B-53. OD-01 Edit Common Origination Records



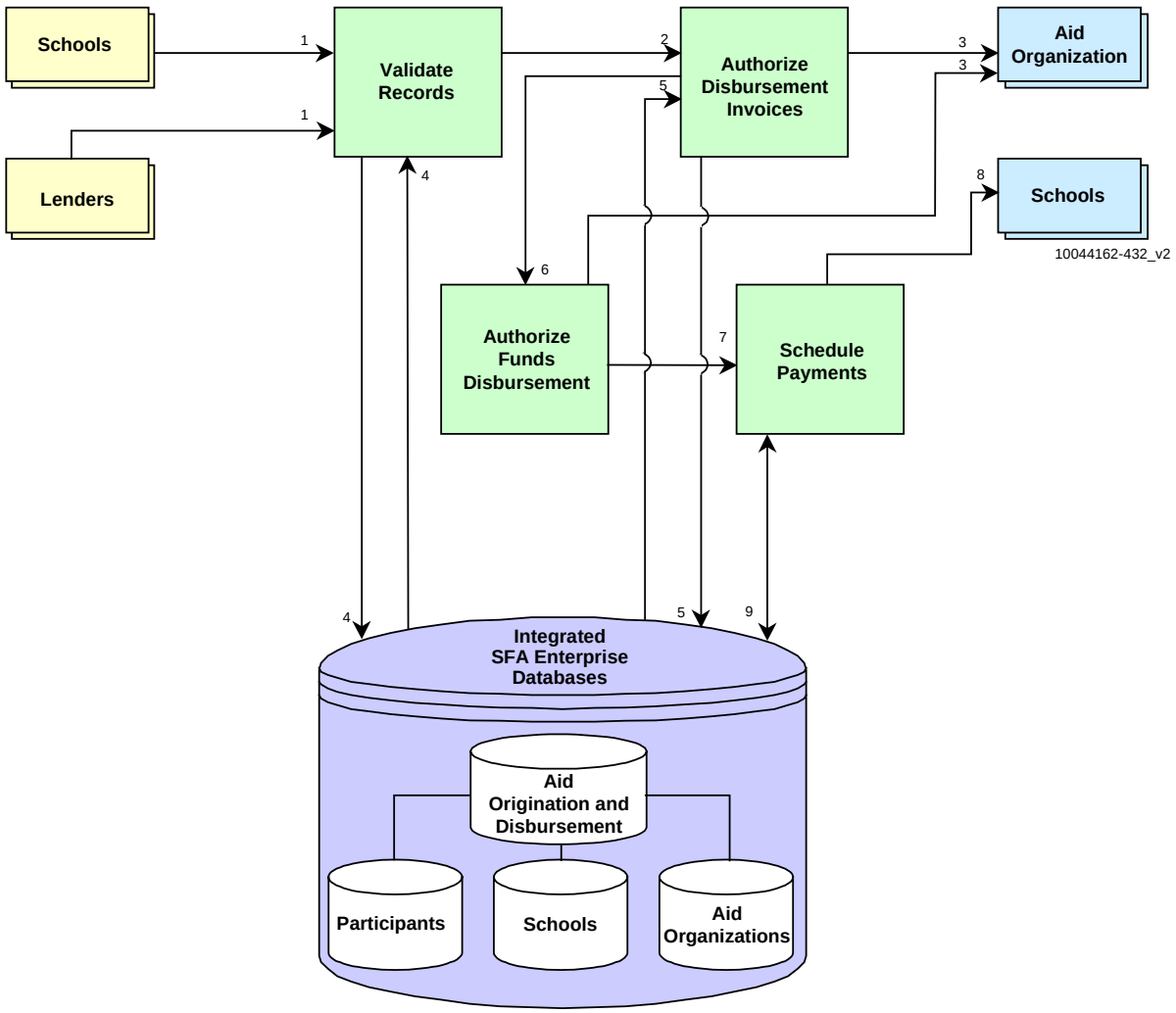
01 Disbursement Record (student level)
02 Checking parameters of origination records (accepted loan amount)
03 Drawdown (advance payment) request – current system (GAP)
04 Payment ($) for drawdown; Just-in-time payments in school accounts and Standard Option and Option One (D.L. schools for which ED does the drawdown)
05 Record to send to school explicit amount of money
06 Disbursement Record
07 When $ comes apply it to these people
08 Database updates

Figure IV.B-54. OD-01 Edit Common Disbursement Records



01 Borrower authorizations
02 Planning debt management
03 Long term debt management
04 Debt management plan
05 Debt management data
06 Long term debt planning data
07 Borrower authorization data

Figure IV.B-55. OD-03 Process Borrower Authorizations



01 Origination and disbursement records
02 Validation result for authorization
03 Data for ACH payments
04 Access/update organizations and disbursement data
05 Invoice data
06 Authorize invoice
07 Funds authorized
08 Schedule payment details
09 Schedule payments

Figure IV.B-56. OD-04 Authorize Payments to Schools

OD-06 Reconcile Drawdown

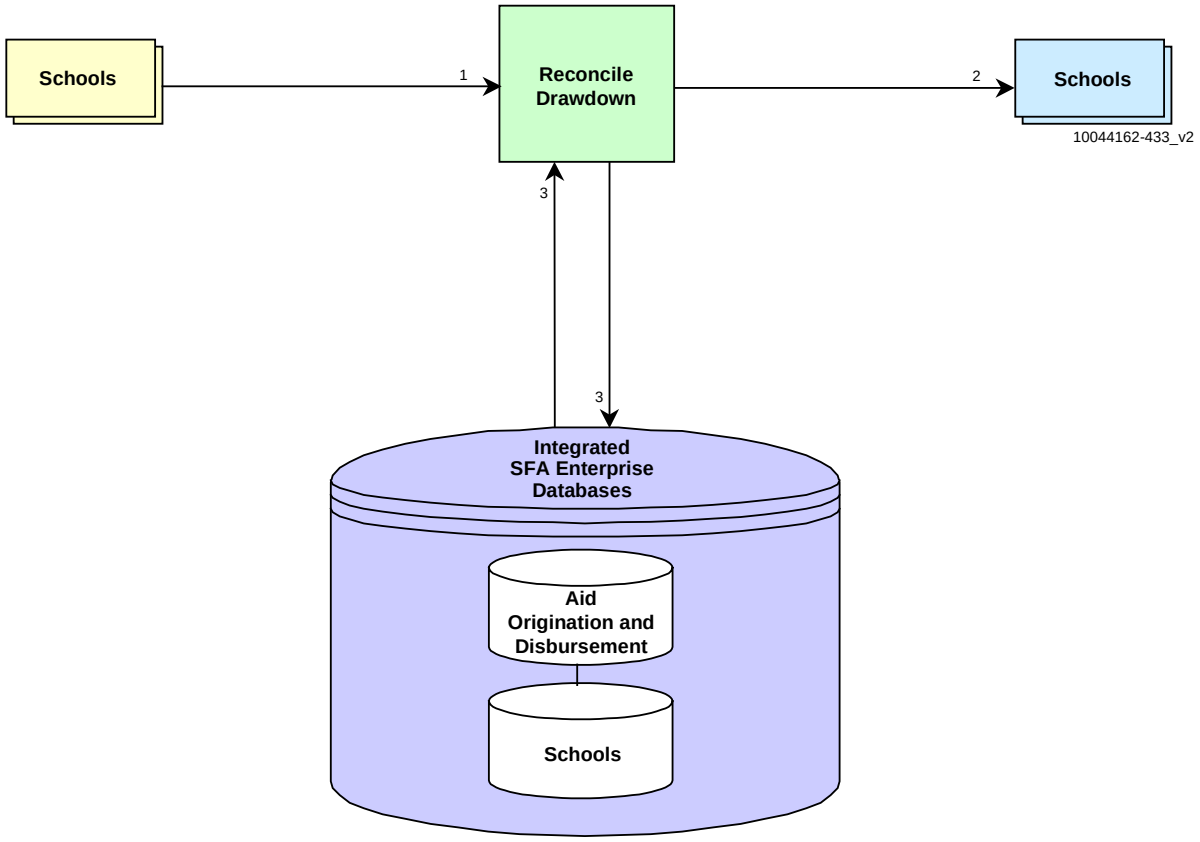
The subprocess flow illustrated in Figure IV.B-57 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Reconcile Drawdown subprocess. It reconciles drawdown amounts disbursed to schools against disbursements, adjustments, and cancellation records received from schools.

OD-09 Maintain Enrollment Status

The subprocess flow illustrated in Figure IV.B-58 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Maintain Enrollment Status subprocess. It tracks a student's enrollment status at a school. Participant's status is requested from schools and forwarded to loan holders and guaranty agencies.

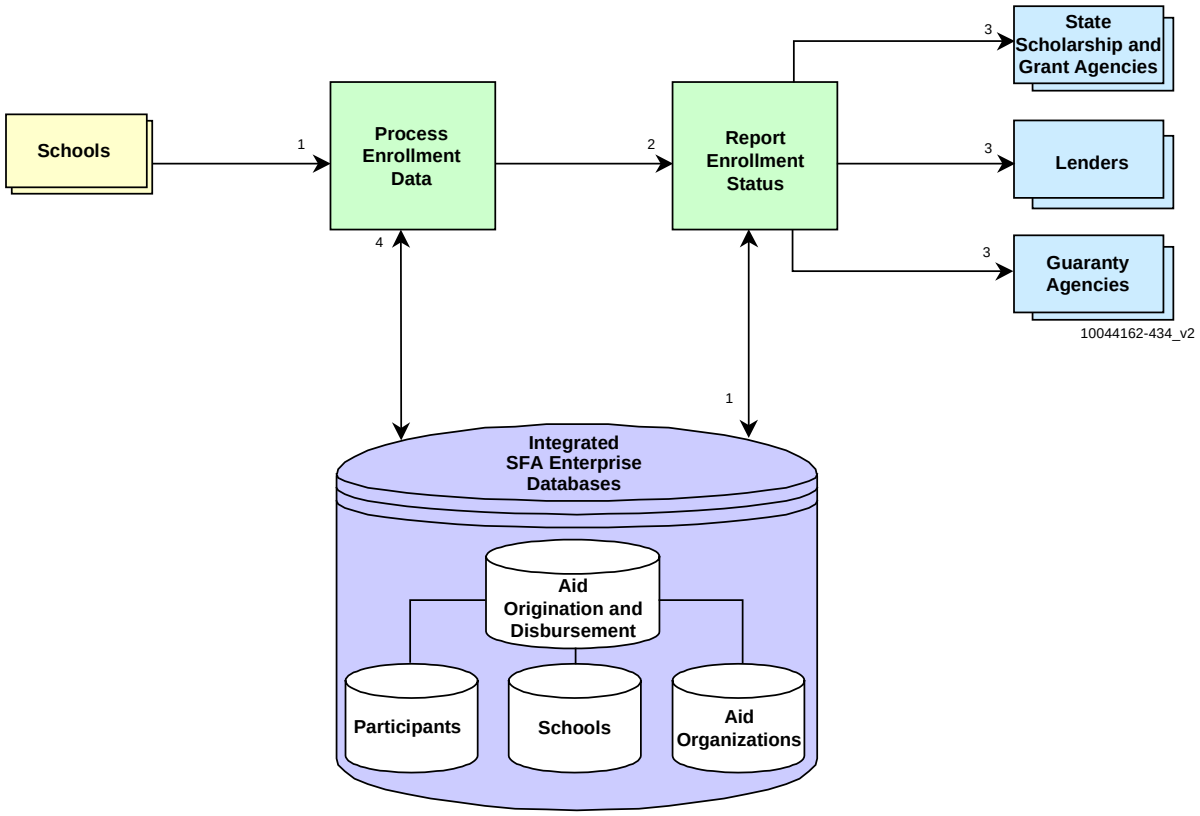
OD-016 Manage Lender Disbursement Information

The subprocess flow illustrated in Figure IV.B-59 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage Lender Disbursement Information subprocess. It receives fund source disbursement information and default loan information from the lender. It also distributes student-level disbursement information to schools.



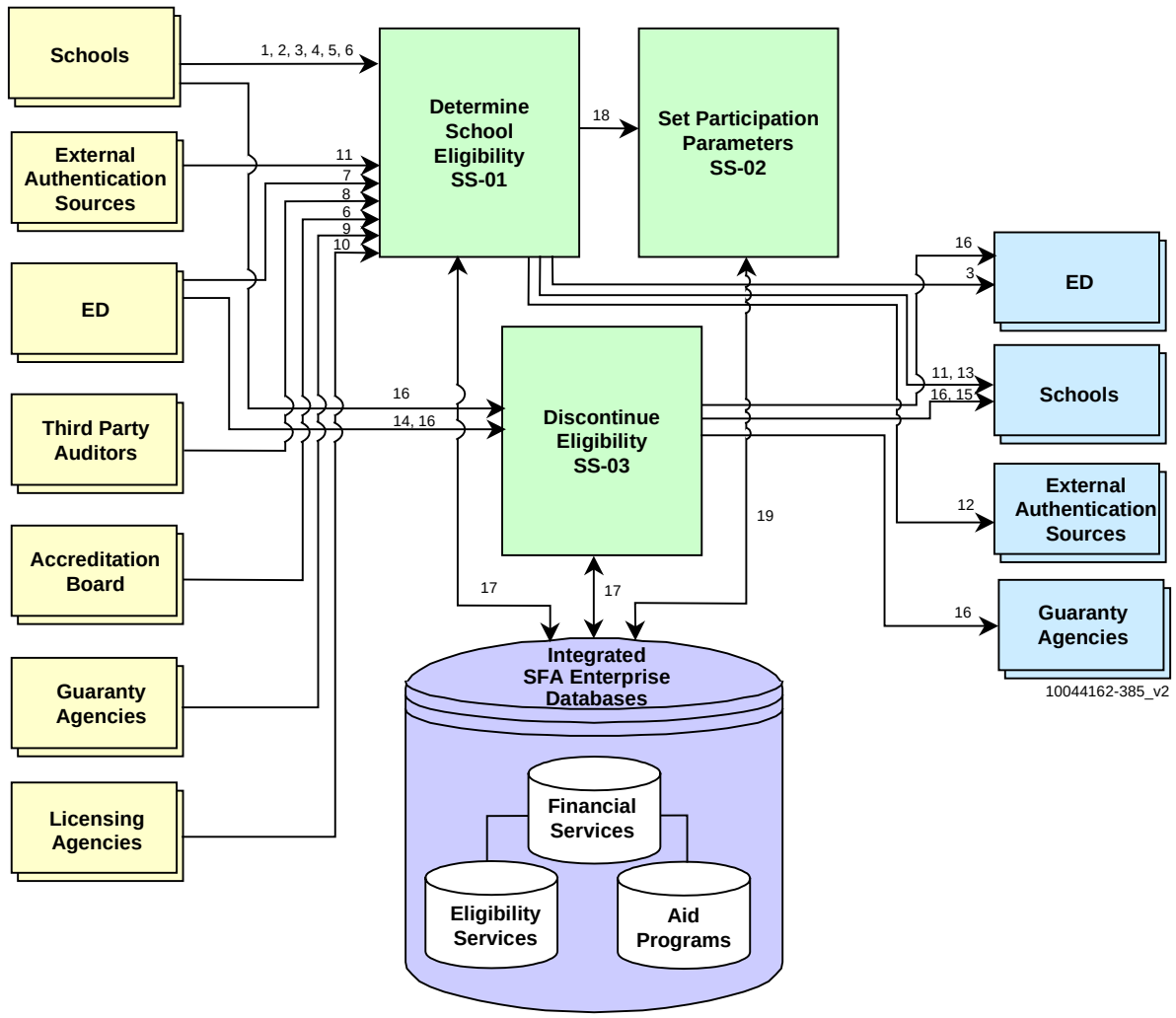
01 Drawdown amount details
02 Drawdown method
03 Drawdown method data

Figure IV.B-57. OD-06 Reconcile Drawdown



01 Enrollment data
02 Status notification
03 Enrollment status
04 Access/update enrollment data

Figure IV.B-58. OD-09 Maintain Enrollment Status



01	School application for eligibility or recertification	11	PIN/OPE ID
02	Signed PPAs	12	Approval/disapproval of eligibility
03	Change of ownership	13	Program acceptance package
04	Signed letters of credit	14	Order to discontinue eligibility
05	School certification application data	15	Start/stop payment order
06	Accreditation Information	16	School participation status
07	Request for letters of credit	17	Eligibility details
08	3rd party audit information	18	School parameter details
09	Review of school/school audit data	19	Participation details
10	Licensing information		

Figure IV.B-59. OD-16 Manage Lender Disbursement Information

Financial Partner Services – Program Eligibility Subprocess Flows

FI-01 Determine Financial Partner Eligibility

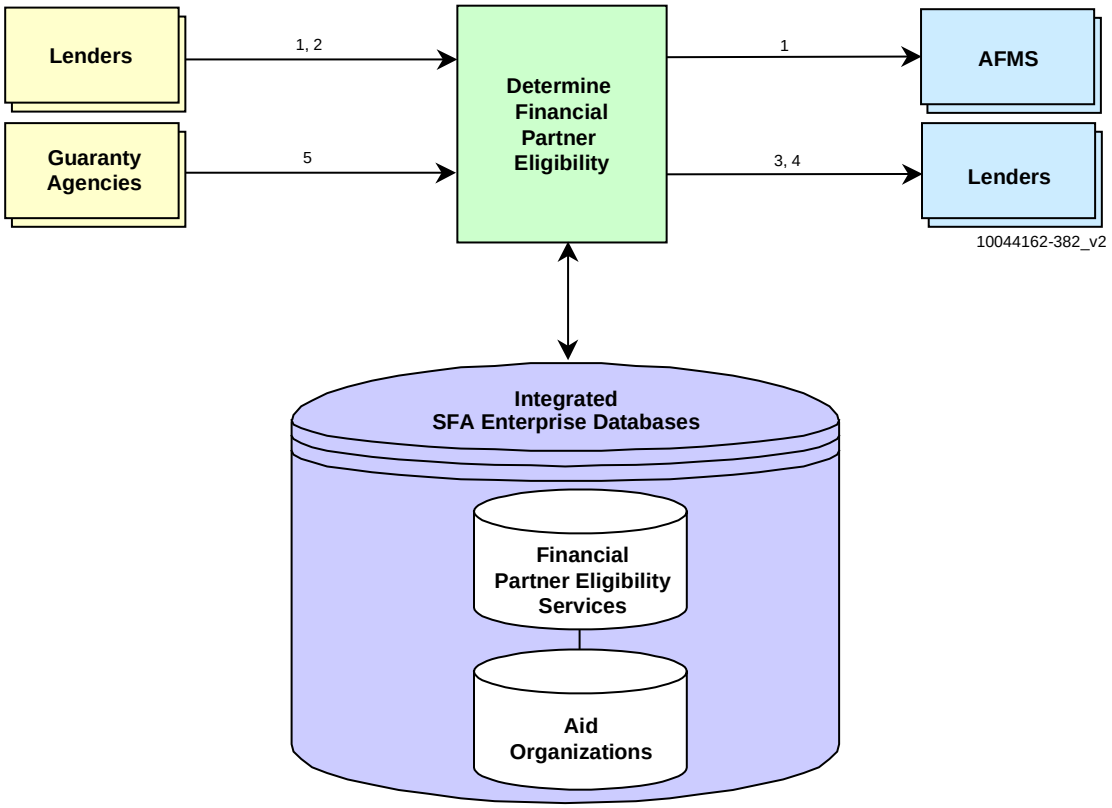
The subprocess flow illustrated in Figure IV.B-60 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Determine Financial Partner Eligibility subprocess. It receives program application information from potential lenders and generates program eligibility notices.

FI-02 Manage State LEAPP Application

The subprocess flow illustrated Figure IV.B-61 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage State LEAPP Application subprocess. It receives and processes state applications for the Federal contributions programs.

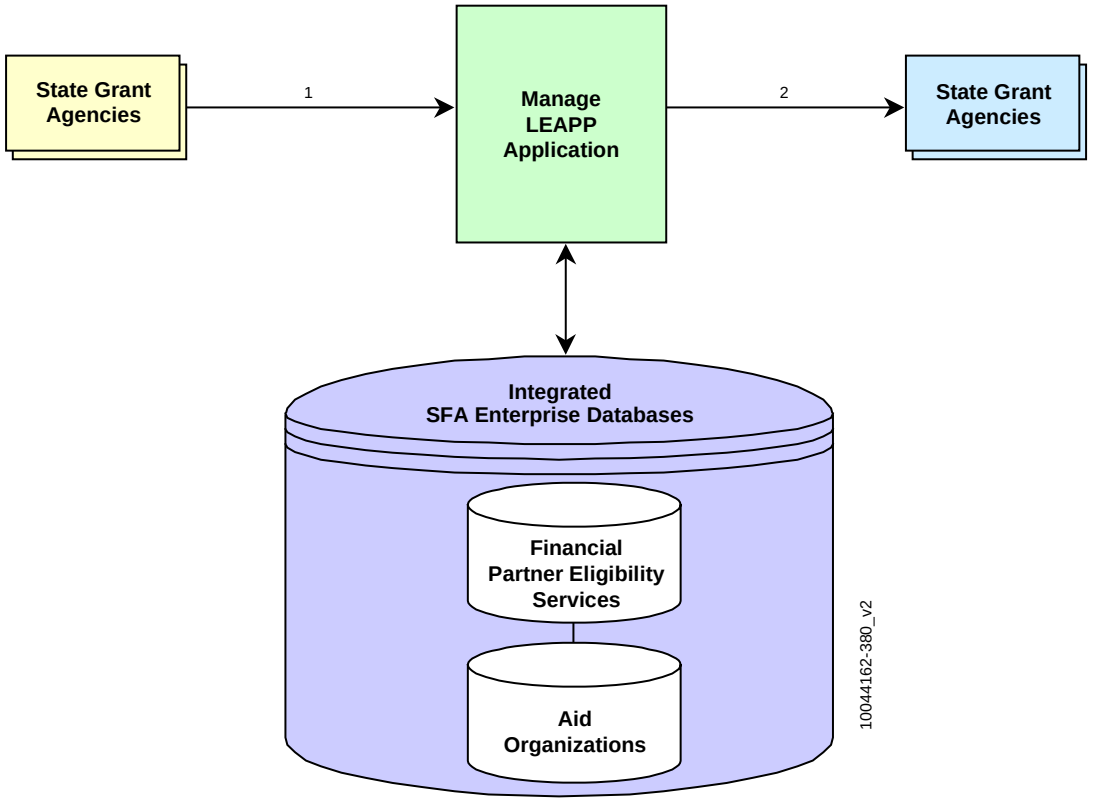
FI-03 Discontinue Financial Partner Eligibility

The subprocess flow illustrated Figure IV.B-62 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Discontinue Financial Partner Eligibility subprocess. It manages the deactivation of lender eligibility based on performance and adherence to reporting requirements.



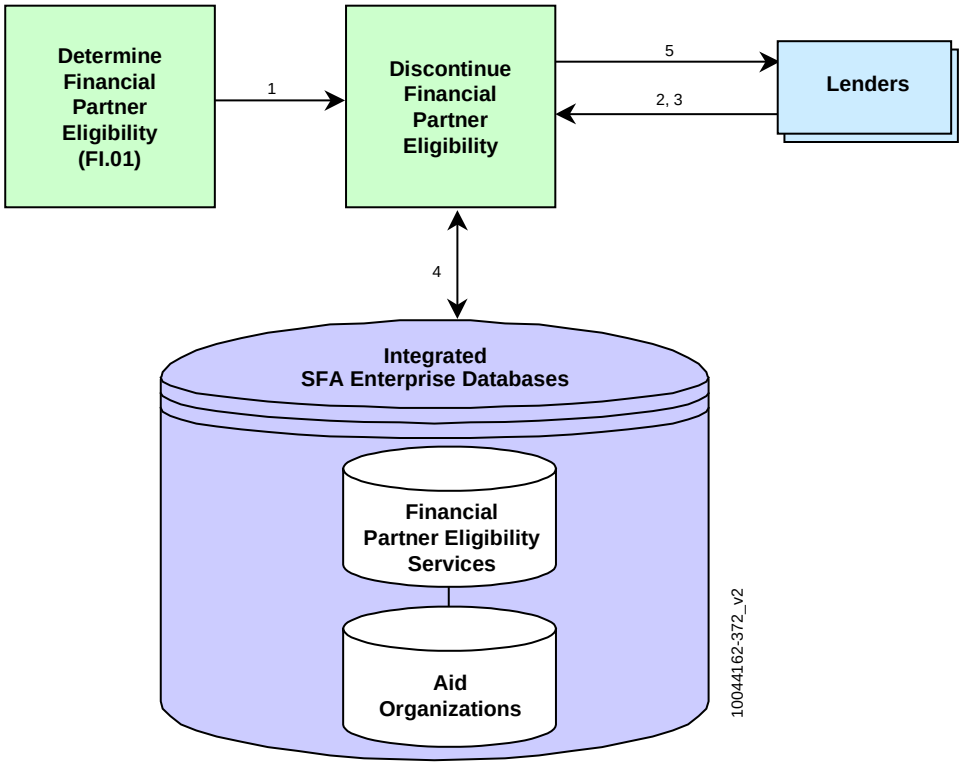
01 Notification of applications to participate in Title IV programs
02 Complete LPQs
03 Lender Participation Questionnaire (LPQ)
04 Eligibility notices or confirmations
05 Approval of Lender applications

Figure IV.B-60. FI-01 Determine Financial Partner Eligibility



01 Reports on disbursement of LEAPP funds
02 Performance data

Figure IV.B-61. FI-02 Manage State LEAPP Application



01	Eligibility for Financial Partners
02	Claims
03	Voluntary discontinue
04	Access/update institution status
05	Deactivate

Figure IV.B-62. FI-03 Discontinue Financial Partner Eligibility

Financial Partner Services – Program Support Subprocess Flows

FI-04 Develop and Deliver Information, Training, and Technical Assistance

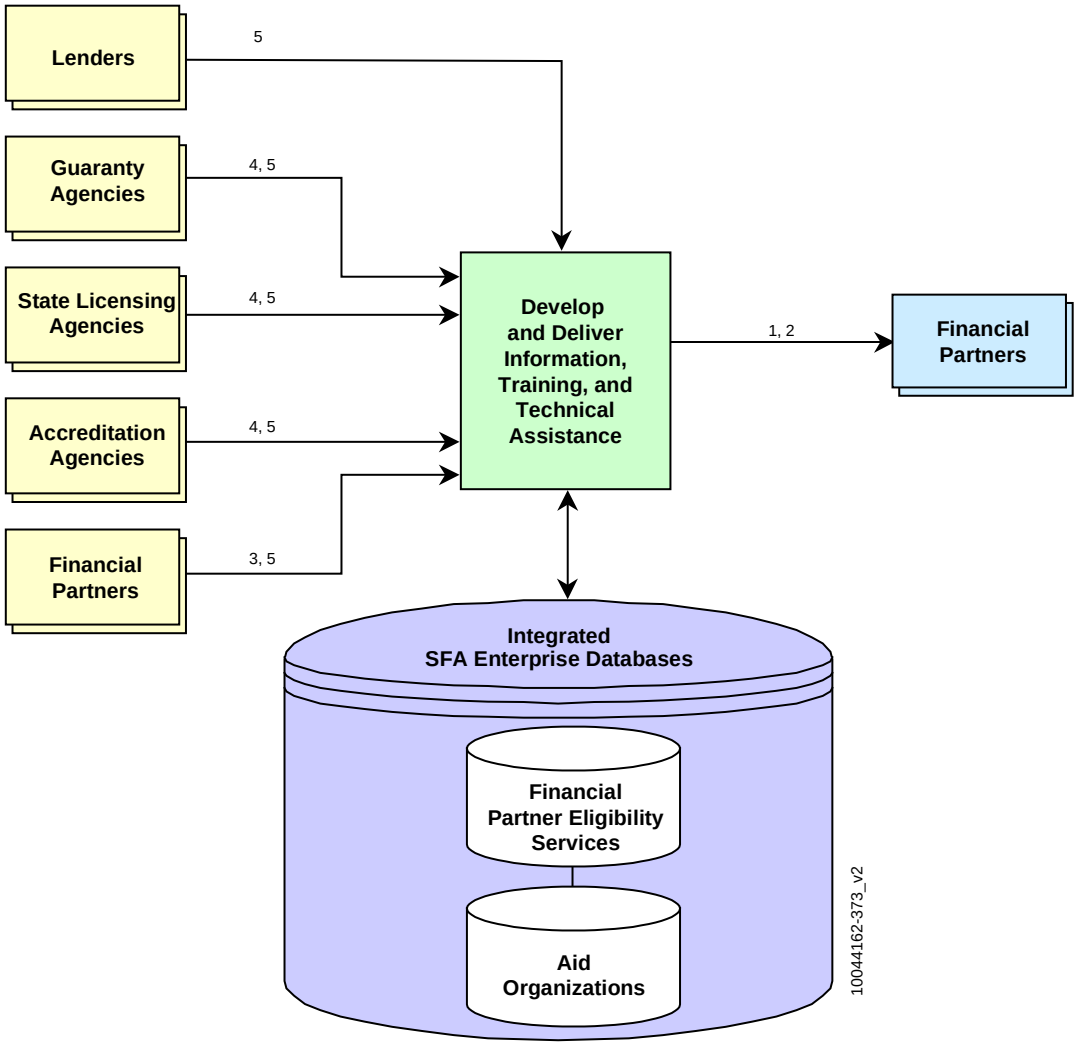
The subprocess flow illustrated in Figure IV.B-63 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Develop and Deliver Information, Training and Technical Assistance subprocess. It supports financial partners (lenders, guaranty agencies and services) with information, training, and technical assistance related to Title IV financial aid policy and operational issues.

FI-05 Maintain Financial Partner Performance Data

The subprocess flow illustrated in Figure IV.B-64 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Maintain Financial Partner Performance Data subprocess. It collects and maintains financial partner profiles, program reviews, and audits that are performed external and internal to ED. Additional performance data is collected, updated, and tracked through this subprocess. This data will be accessed, manipulated, and used during the risk analysis and performance reviews conducted by ED.

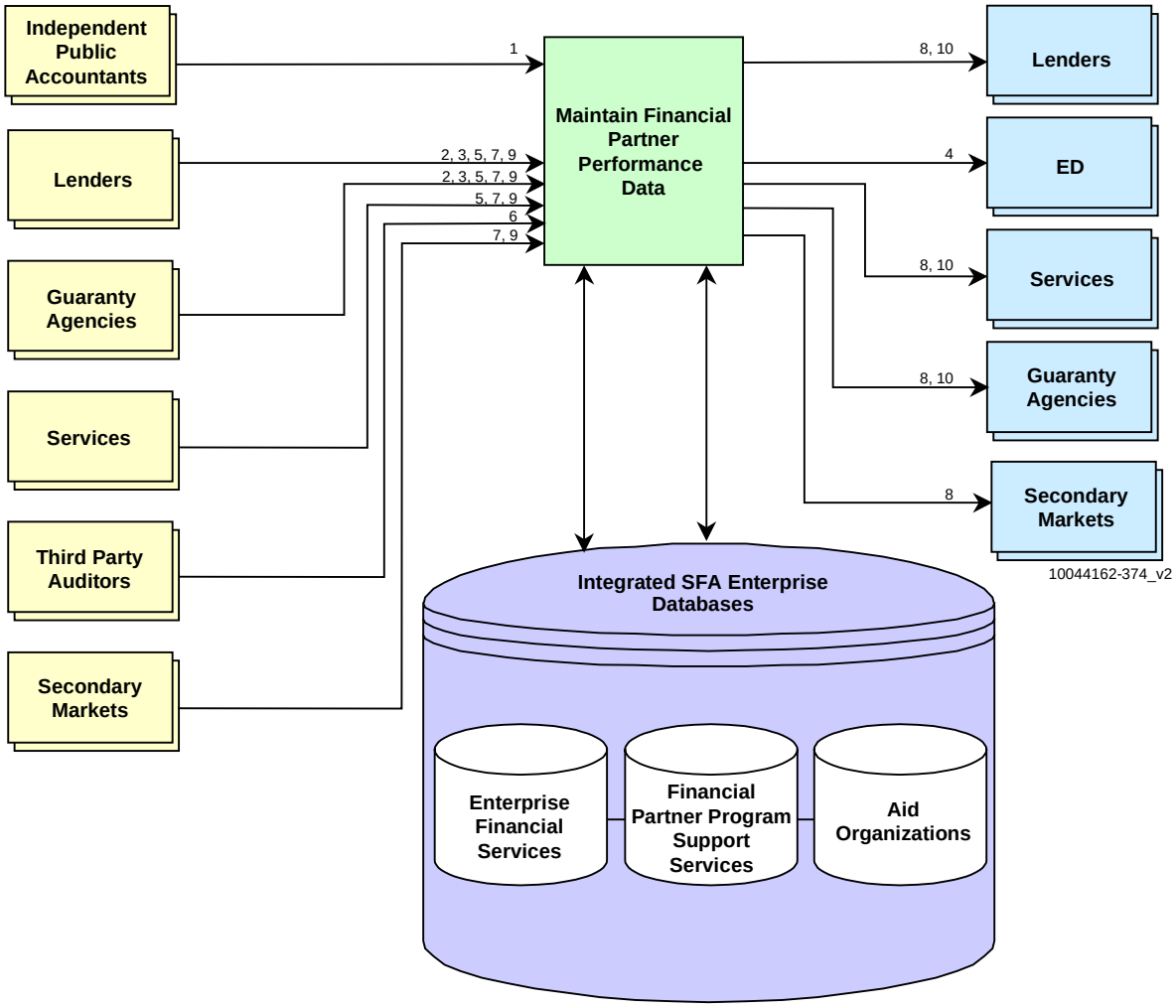
FI-06 Monitor Financial Partner Performance

The subprocess flow illustrated in Figure IV.B-65 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Monitor Financial Partner Performance subprocess. It analyzes the risk profile of financial partners to identify potential issues and target program reviews conducted by ED. The system will enable ED to predict and monitor performance based on pre-determined indicators or drivers that vary by type of financial partner.



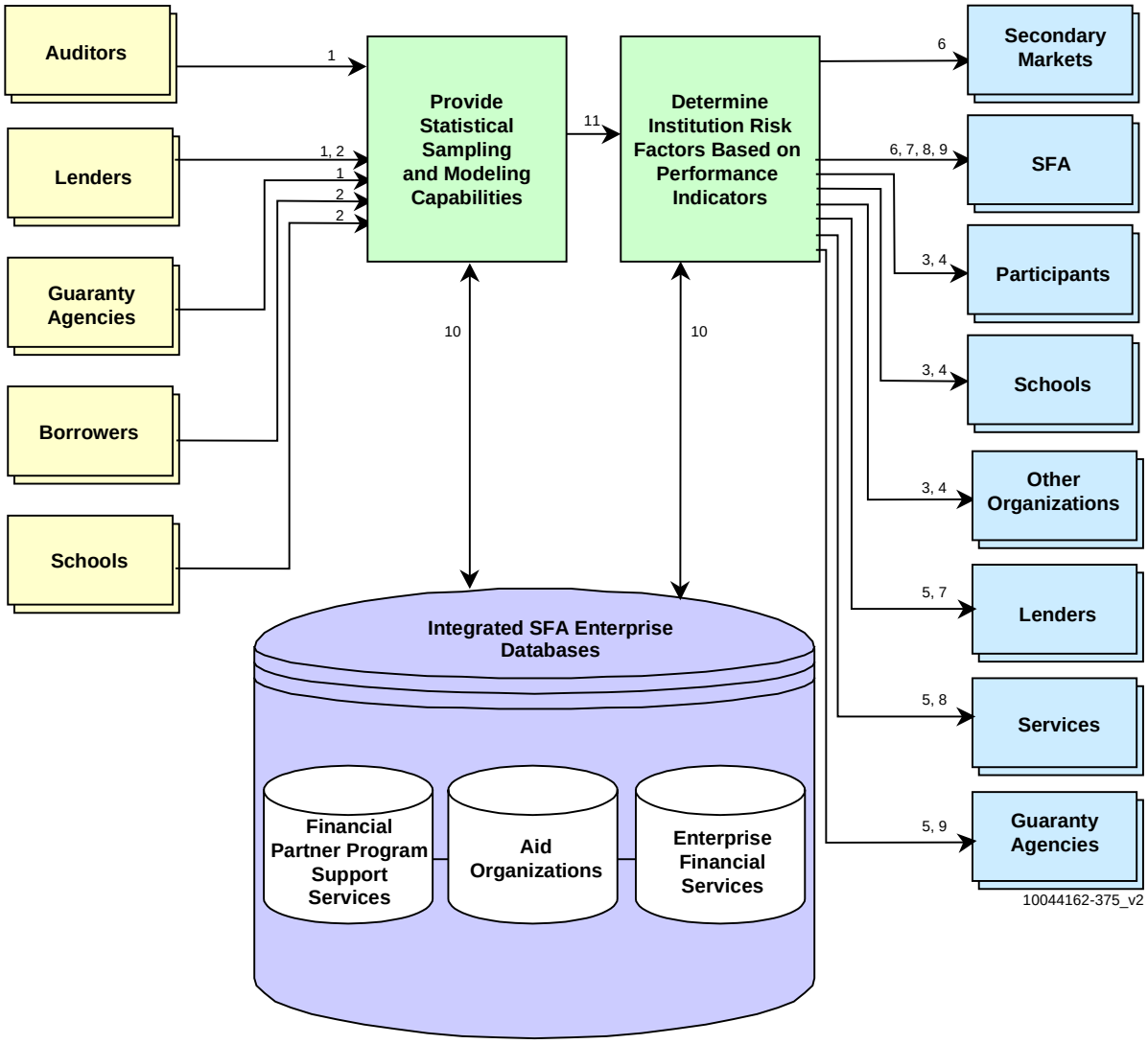
01 Training on content of Title IV programs, regulations, offerings, and aid levels
02 Technical assistance, quality assurance training, and tools
03 Financial partner profile
04 External review/audit data of financial partner
05 Survey data and feedback from focus groups, phone statistics, etc.

Figure IV.B-63. FI-04 Develop and Deliver Information, Training, and Technical Assistance



01 Lender audit reports
02 Review data
03 Reporting form data
04 Organizational program review and audit data
05 SFA's review and audit data
06 Quality control process review
07 Profiles
08 Financial program and oversight data
09 Appeals of SFA program reviews and appeals of calculated default rates
10 Audit and review appeal status

Figure IV.B-64. FI-05 Maintain Financial Partner Performance Data



01 Request to access transaction histories
02 Feedback on services offered by Financial Partners
03 Request for feedback on Financial Partner Services
04 Results from feedback on services offered by Financial Partners
05 Financial oversight data
06 Secondary market default rates
07 Lender default rates
08 Services default rates
09 Guarantee agency default rates
10 Transaction histories
11 Modeled data for Financial Partners

Figure IV.B-65. FI-06 Monitor Financial Partner Performance

FI-07 Conduct Financial Partner Program Reviews

The subprocess flow illustrated in Figure IV.B-66 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Conduct Financial Partner Program Reviews subprocess. It schedules and conducts program reviews of financial partners based on targeting efforts. Targeted program reviews will be driven by:

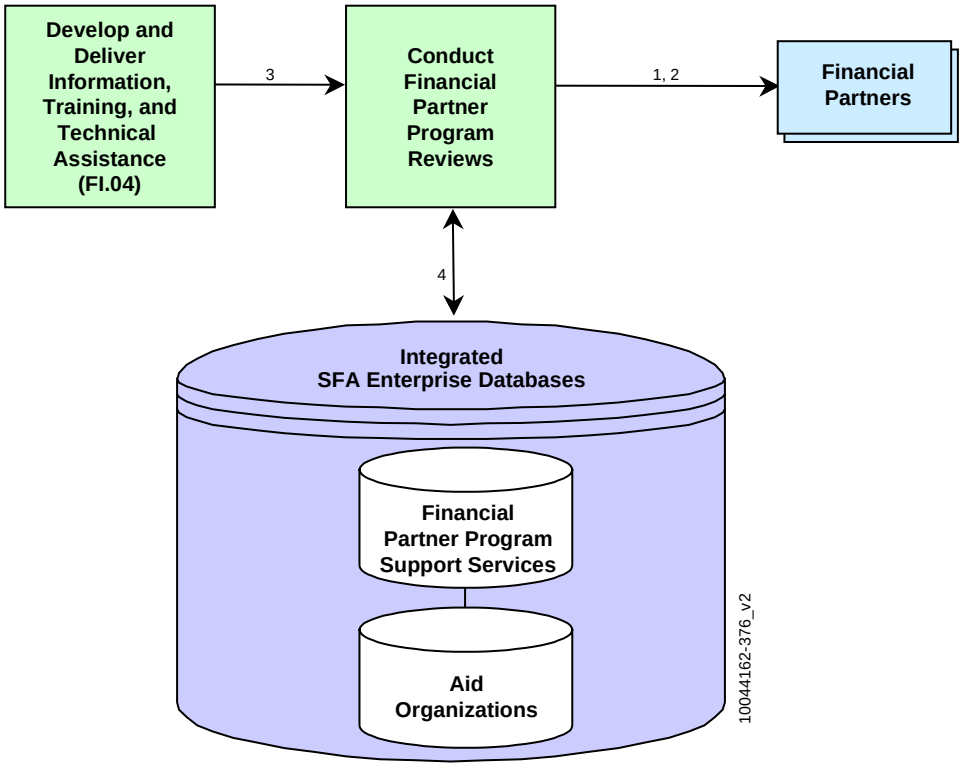
- Outcomes of performance analysis already conducted (i.e., desk reviews)
- Mergers or changes of ownership
- Complaints/External issues affecting given financial partners
- Substantial change in loan volumes
- Analysis of published reporting or review data

FI-08 Take Action on Performance

The subprocess flow illustrated in Figure IV.B-67 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Take Action on Performance subprocess. It manages the outcomes of performance analysis and program reviews. This activity also oversees ED's response and involvement with appeals to audits, and program reviews performed by ED.

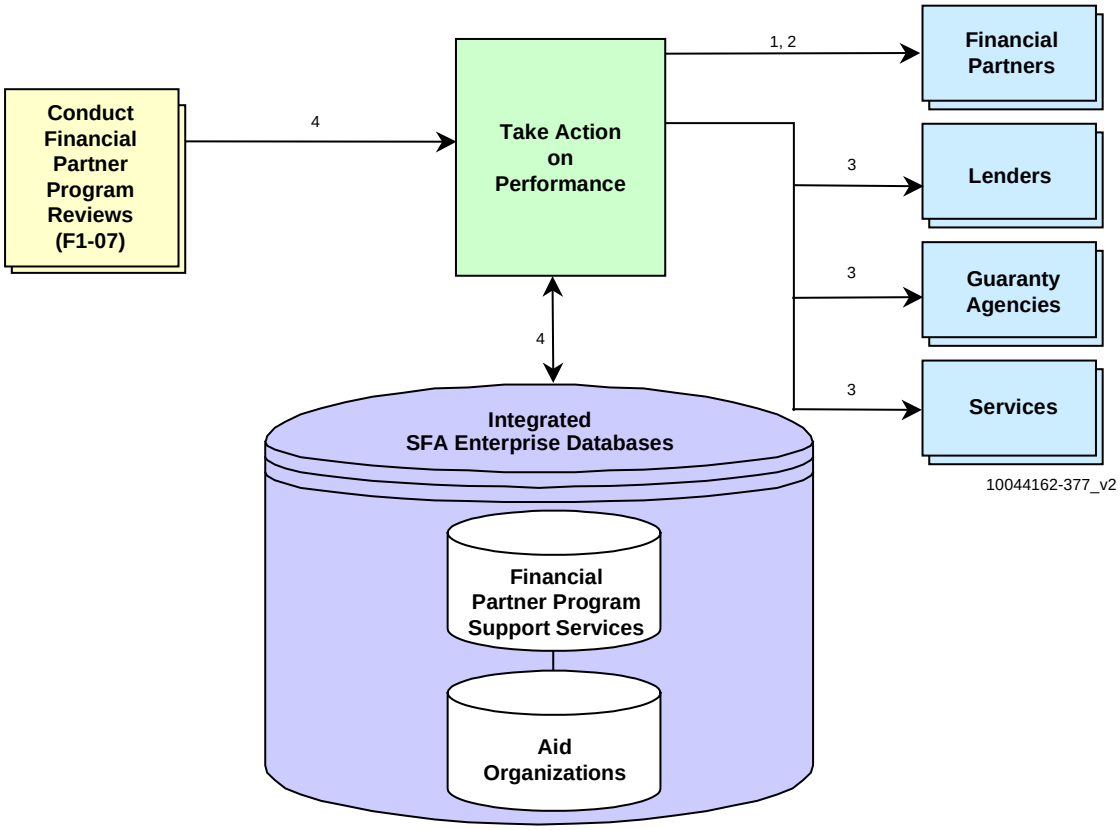
FI-09 Make Payments to Lenders

The subprocess flow illustrated in Figure IV.B-68 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Make Payments to Lenders subprocess. It authorizes and processes interest invoice claims and special allowance invoices from fund sources. It also manages payoffs to lenders for consolidation of direct loans.



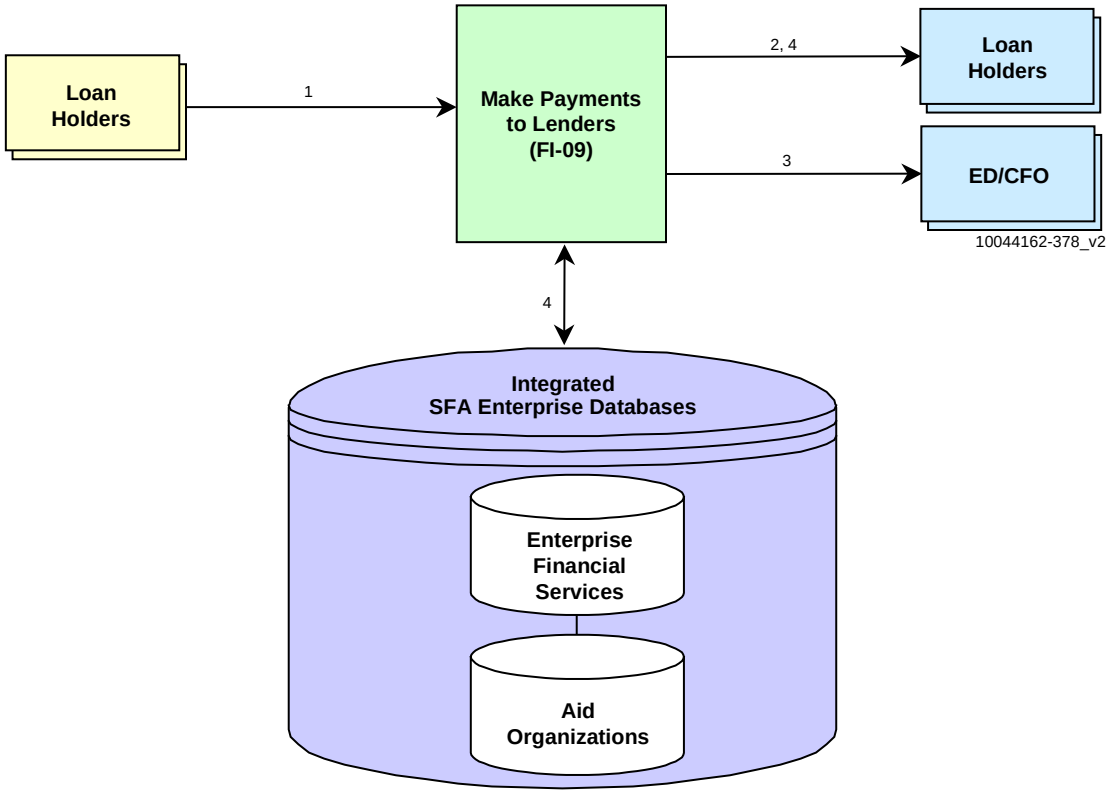
01 Prenotification of program reviews
02 Program reviews
03 Training and Technical Assistance programs
04 Training programs and program reviews

Figure IV.B-66. FI-07 Conduct Financial Partner Program Reviews



01 Program determination letters
02 Fines for noncompliance
03 Notice of limitation on participation or discontinuance of participation
04 Performance model of Financial Partners

Figure IV.B-67. FI-08 Take Action on Performance



01 Loan holder interest and special allowance invoice
02 Approval/rejection notices for interest and special allowance invoices
03 Loan holder interest and special allowance authorizations
04 Payoffs for direct loan consolidations

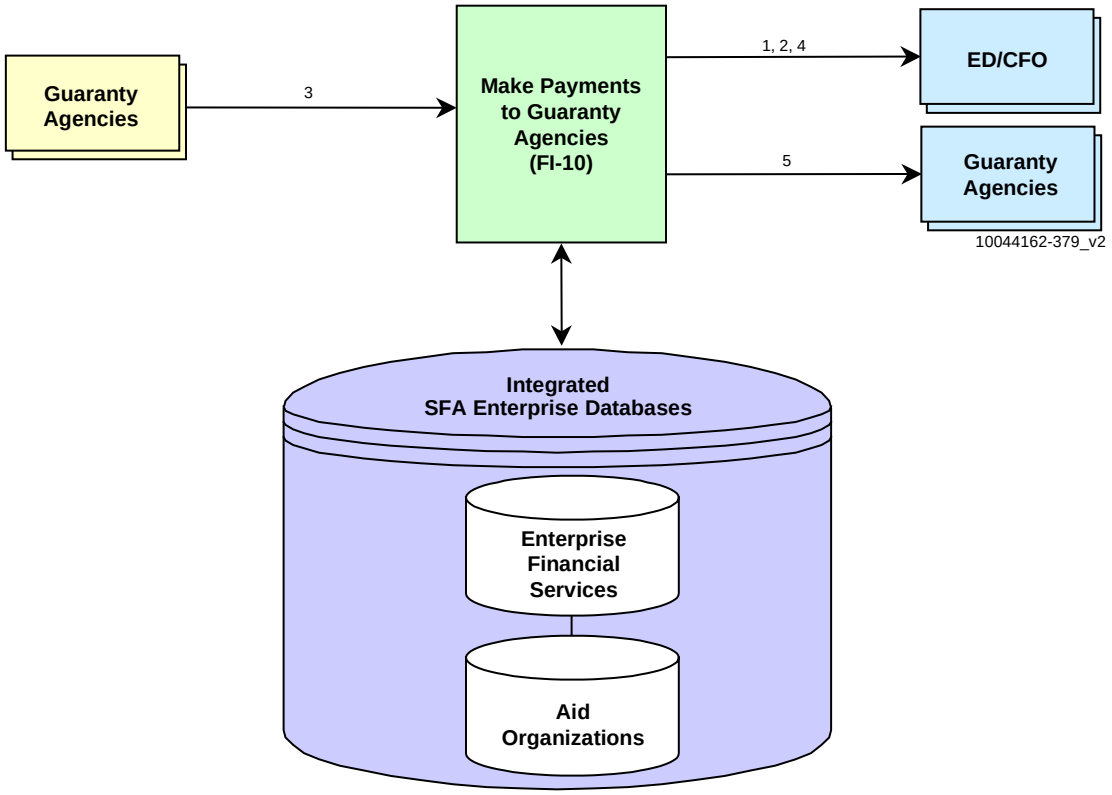
Figure IV.B-68. FI-09 Make Payments to Lenders

FI-10 Make Payments to Guaranty Agencies

The subprocess flow illustrated in Figure IV.B-69 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Make Payments to Guaranty Agencies subprocess, which make payments to Guaranty Agencies.

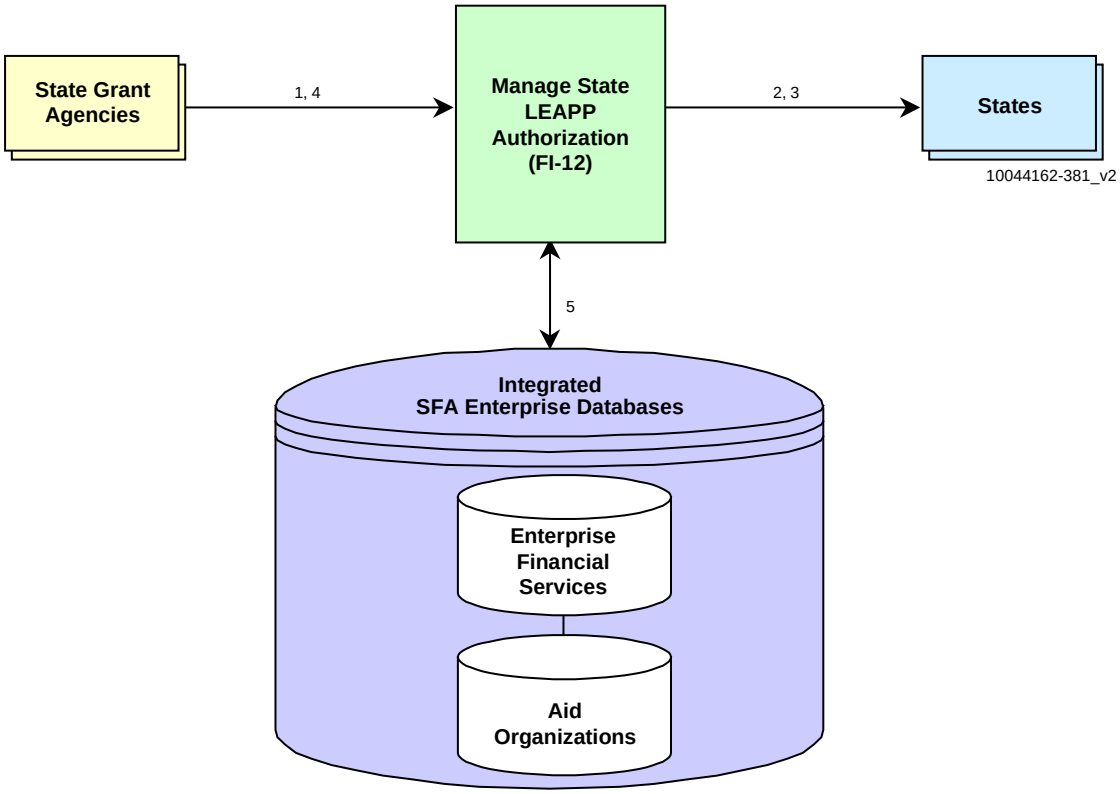
FI-12 Manage State LEAPP Authorization

The subprocess flow illustrated in Figure IV.B-70 depicts business interactions performed by external agents of the SFA business channels and SFA internals within the Manage State LEAPP Authorization subprocess. It manages information about the federal LEAPP contributions to a given state. The LEAPP contribution is allotted based on several criteria.



01 Generate payment requests for maintenance fees
02 Generate payment request for processing fees
03 Reinsurance claims
04 Generate payment requests for reinsurance claims
05 Approval/rejection of reinsurance claims

Figure IV.B-69. FI-10 Make Payments to Guaranty Agencies



01 Profile information
02 Notification of LEAPP Authorization amounts
03 State LEAPP ACH payment request
04 Reports on disbursements of LEAPP funds
05 Authorization details

Figure IV.B-70. FI-12 Manage State LEAPP Authorization

Performance Management – Customer Satisfaction Management Subprocess Flows

Following are the diagrams for the subprocess flows for the Customer Satisfaction Management process.

CS-01 Objective Setting and Planning

The subprocess flows illustrated in Figure IV.B-71 depict business interactions performed by external agents of the SFA business channels and SFA internal within the objective setting and planning subprocess. This subprocess identifies the data to be collected from the target segments, establishes metrics, and designs initiatives to meet the performance.

CS-02 Customer/Partner Data Gathering

The subprocess flows illustrated in Figure IV.B-72 depict business interactions performed by external agents of the SFA business channels with the subprocess. This subprocess collects the customer and partner data to determine customer satisfaction.

CS-03 Customer/Partner Information Analysis

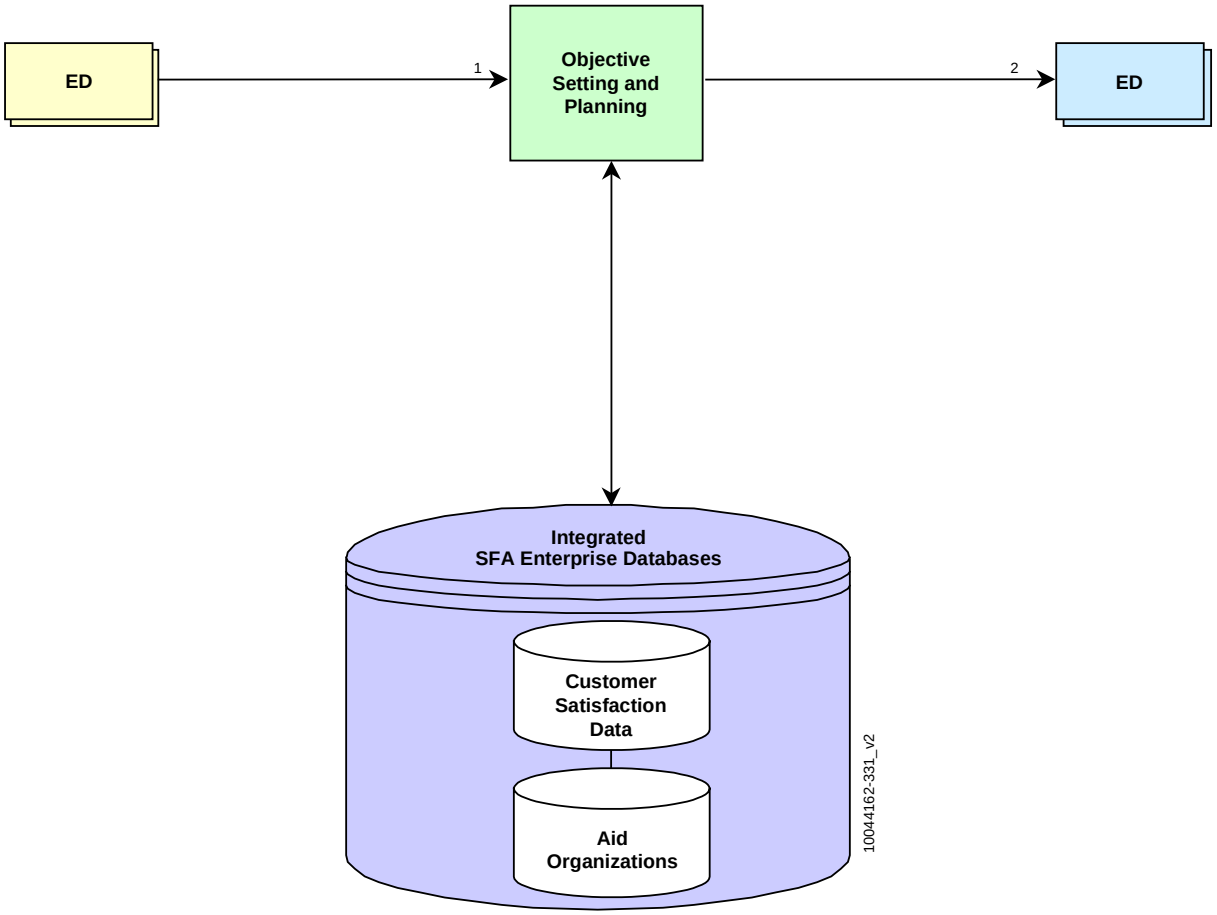
The subprocess flows illustrated in Figure IV.B-73 depict business interactions performed by external agents of the SFA business channels with the subprocess. This subprocess analyzes the data collected against target goals.

CS-04 Action Planning

The subprocess flows illustrated in Figure IV.B-74 depict business interactions performed by external agents of the SFA business channels with the subprocess. This process creates business cases for improvement with corrective actions.

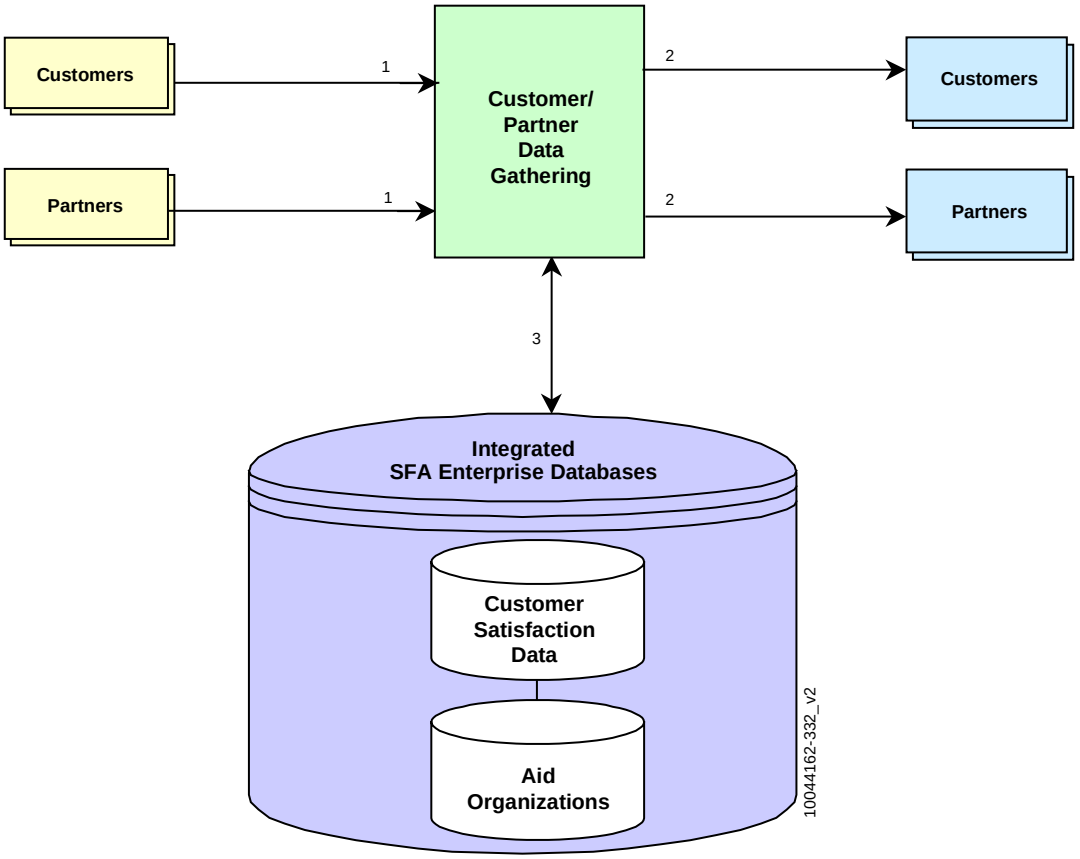
CS-05 Decision Making and CS-06 Customer/Partner Satisfaction Performance Feedback Reporting

The subprocess flows illustrated in Figure IV.B-75 depict business interactions performed within the subprocess. This subprocess makes decisions based on the actions planned in the previous subprocess and provides feedback regarding the data to the customer.



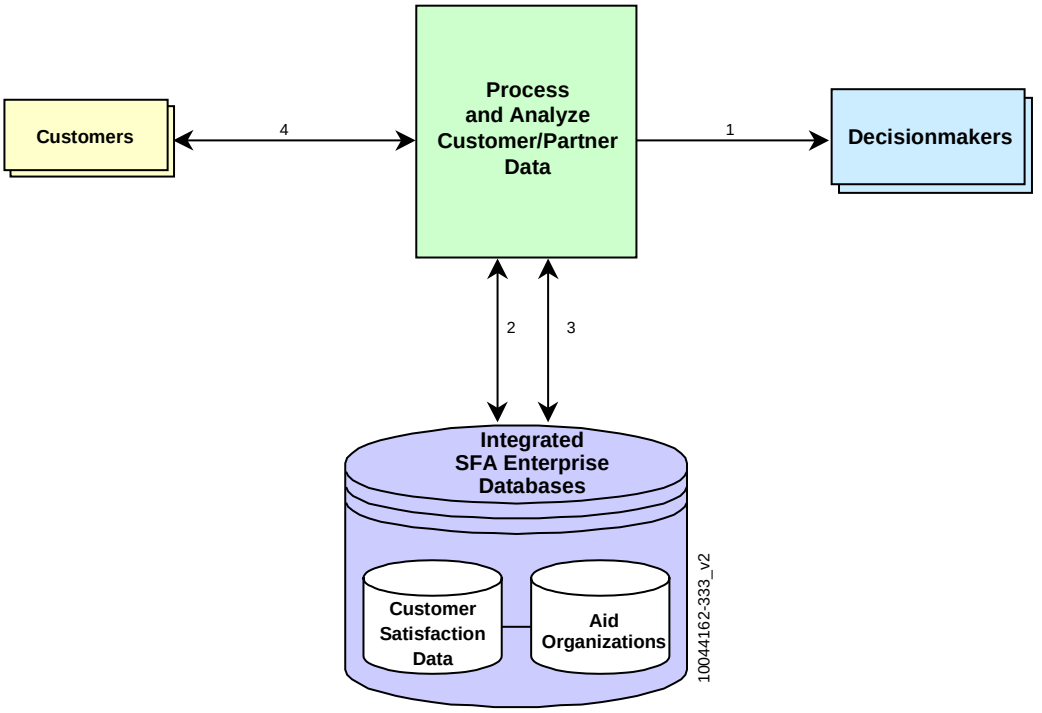
01 Information to be collected
02 Design initiatives
03 Customer/partner data

Figure IV.B-71. CS-01 Objective Setting and Planning



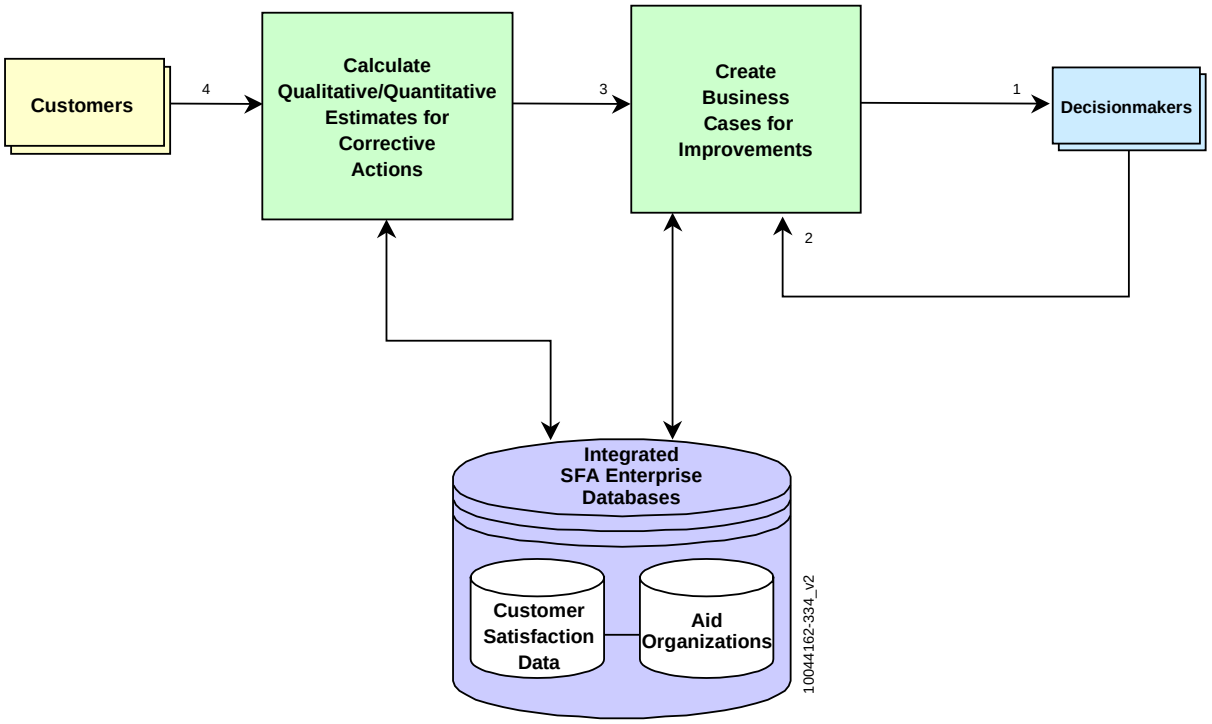
01 Survey data
02 Feedback
03 Survey data

Figure IV.B-72. CS-02 Customer/Partner Data Gathering



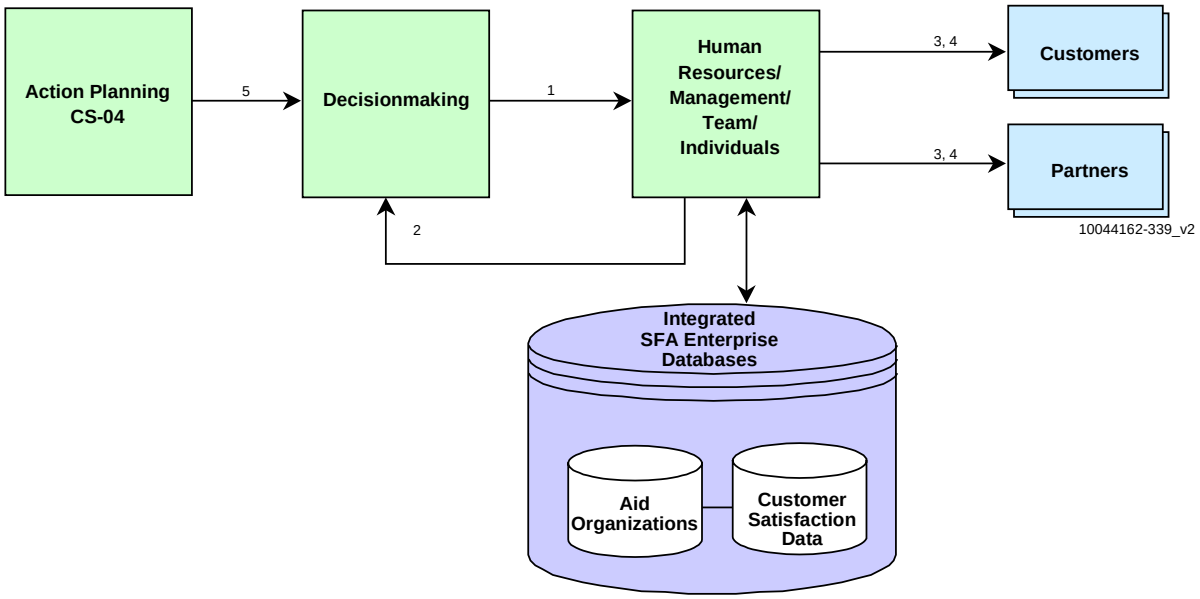
01 Customer satisfaction/dissatisfaction data
02 Write analyzed data and tool outputs
03 Read survey data
04 Customer data

Figure IV.B-73. CS-03 Customer/Partner Information Analysis



01 Recommendations
02 Feedback about each business
03 Estimates for correction
04 Customer data

Figure IV.B-74. CS-04 Action Planning



01 Action steps to address dissatisfaction
02 Feedback
03 Reports
04 Honors/rewards
05 Decisions/plans

Figure IV.B-75. CS-05 Decisionmaking and CS-06 Customer/Partner Satisfaction Performance Feedback Reporting

Performance Management – Employee Satisfaction Management Subprocess Flows

The following diagrams show the interactions and interfaces of Employee Satisfaction Management subprocess.

ES-01 Objective Setting and Planning

The subprocess flows illustrated in Figure IV.B-76 depict business interactions performed with the subprocess. This subprocess identifies what data is to be collected at what frequency and establishes the goals for employee satisfaction.

ES-02 Employee Data Gathering and ES-03 Employee Information Analysis

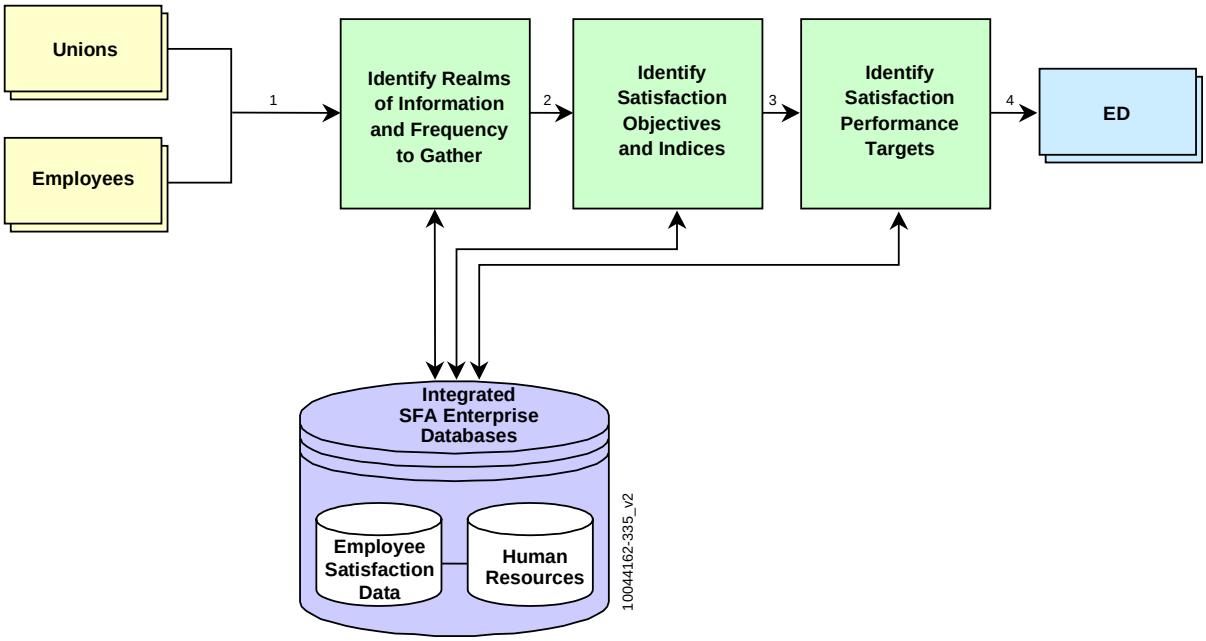
The subprocess flows illustrated in Figure IV.B-77 depict business interactions performed within the subprocesses. These subprocesses gather employee satisfaction data and analyze the data against target benchmarks and goals for the organization.

ES-04 Action Planning and Decision Making

The subprocess flows illustrated in Figure IV.B-78 depict business interactions performed within the subprocess. This subprocess plans actions and makes decisions based on the analysis performed in the previous subprocess.

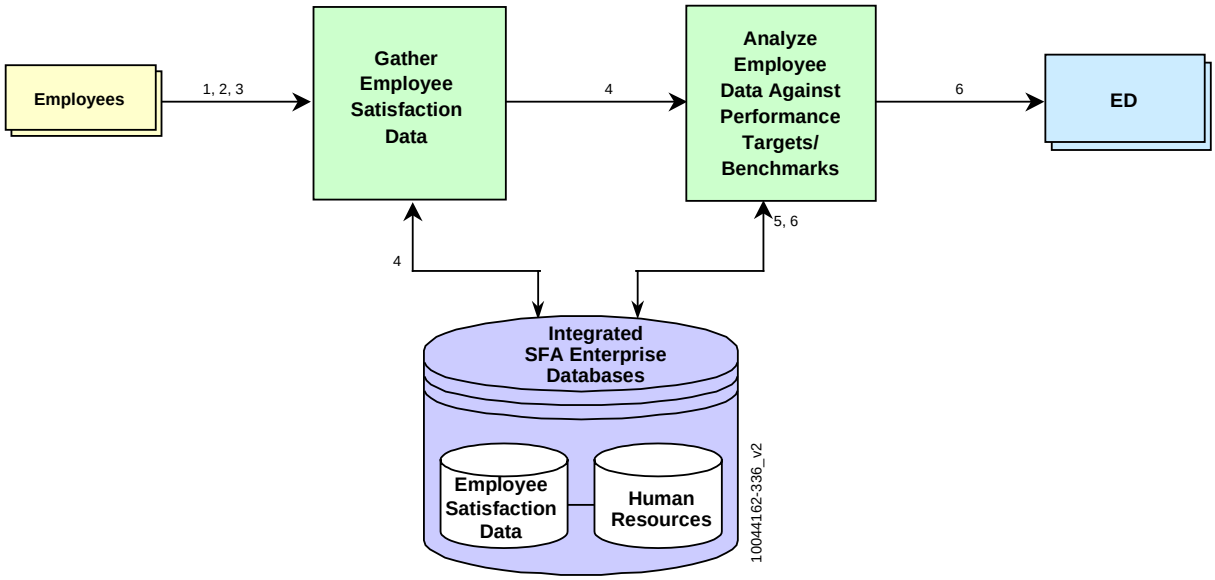
ES-05 Feedback and Communication

The subprocess flow illustrated in Figure IV.B-79 depicts business interactions performed within the subprocess and with the external agents of the SFA. This subprocess is responsible for the feedback of the actions and decisions to the employees, managers, and stakeholders.



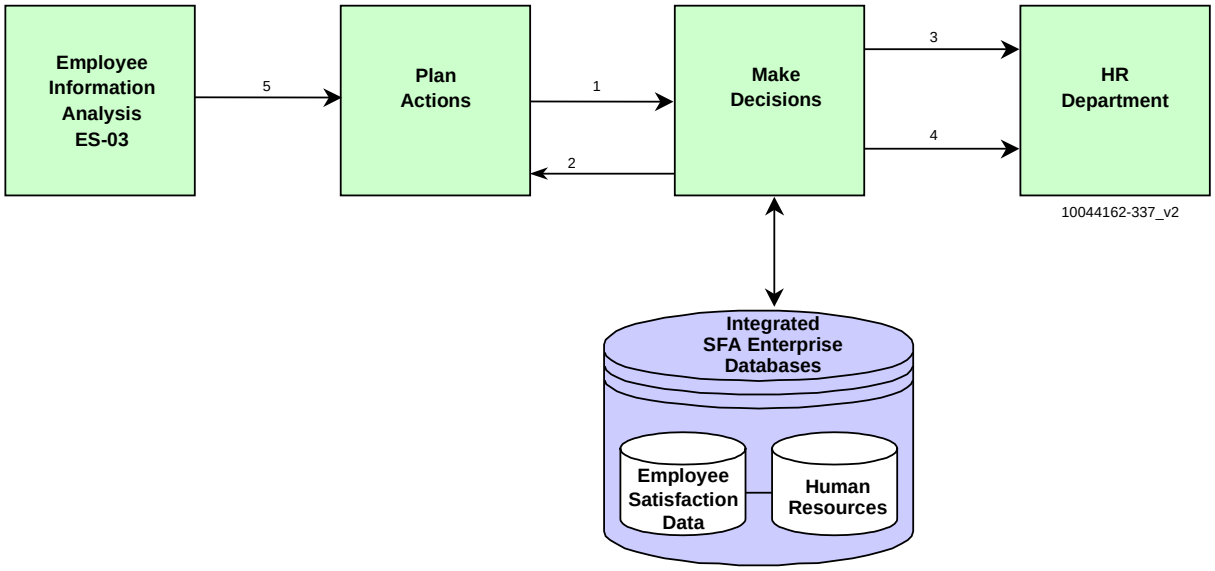
01 Satisfaction criteria and levels
02 Employee information
03 Employee satisfaction goals
04 Design initiatives

Figure IV.B-76. ES-01 Objective Setting and Planning



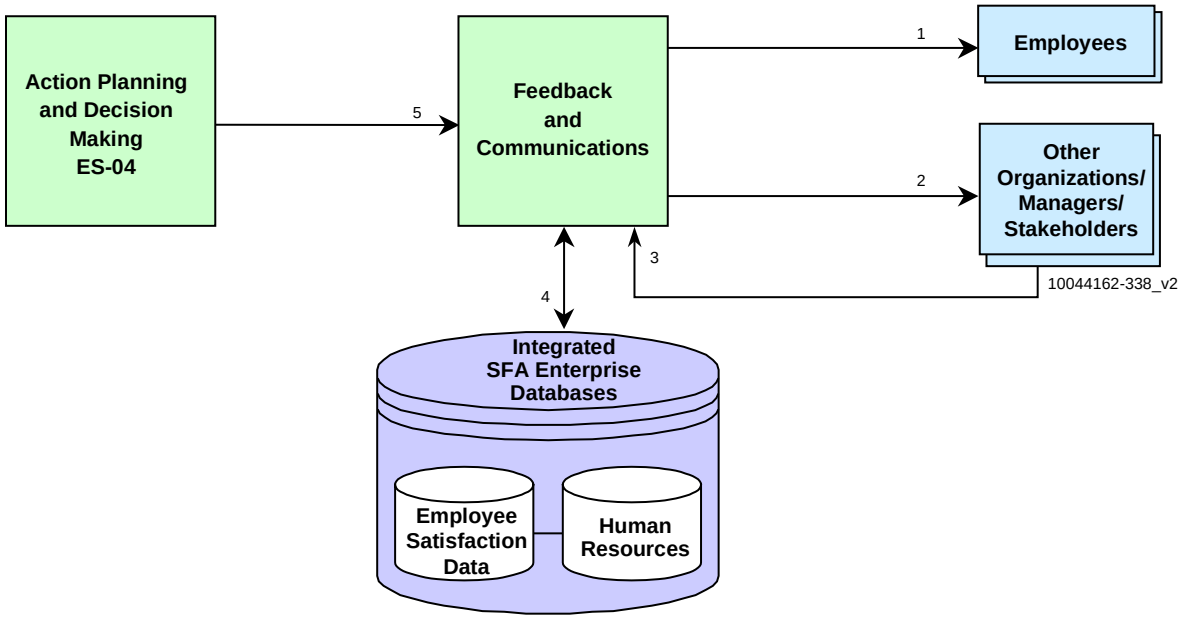
01 Performance reviews
02 Exit interviews
03 Survey data
04 Employee data
05 Survey data
06 Analyzed data

Figure IV.B-77. ES-02 Employee Data Gathering and ES-03 Employee Information Analysis



01 Possible actions
02 Feedback
03 Action items
04 Training needs
05 Analysis data

Figure IV.B-78. ES-04 Action Planning and Decision Making



01 Acknowledgement and thanks
02 Employee satisfaction data
03 Feedback data
04 Employees directory
05 Actions and decisions

Figure IV.B-79. ES-05 Feedback and Communication

Performance Management – Financial Management Subprocess Flows

The following diagrams indicate the interfaces and interactions for the Financial Management process.

FS-01 Core Financial System Management

The Core Financial System Management subprocess sets the framework in which all other core financial system processes operate by capturing data and ensuring control at the point of entry. See Figure IV.B-80.

FS-02 Funds Management

The Funds Management subprocess receives funding information from budgeting and manages fund appropriations, apportionments, allotments, operating plans, and obligations. It supports both government-wide funds management policies and SFA's internal funds allocation methods and controls. In addition, Funds Management is responsible for all loan and grant origination records. See Figure IV.B-81.

FS-03 Payment Management

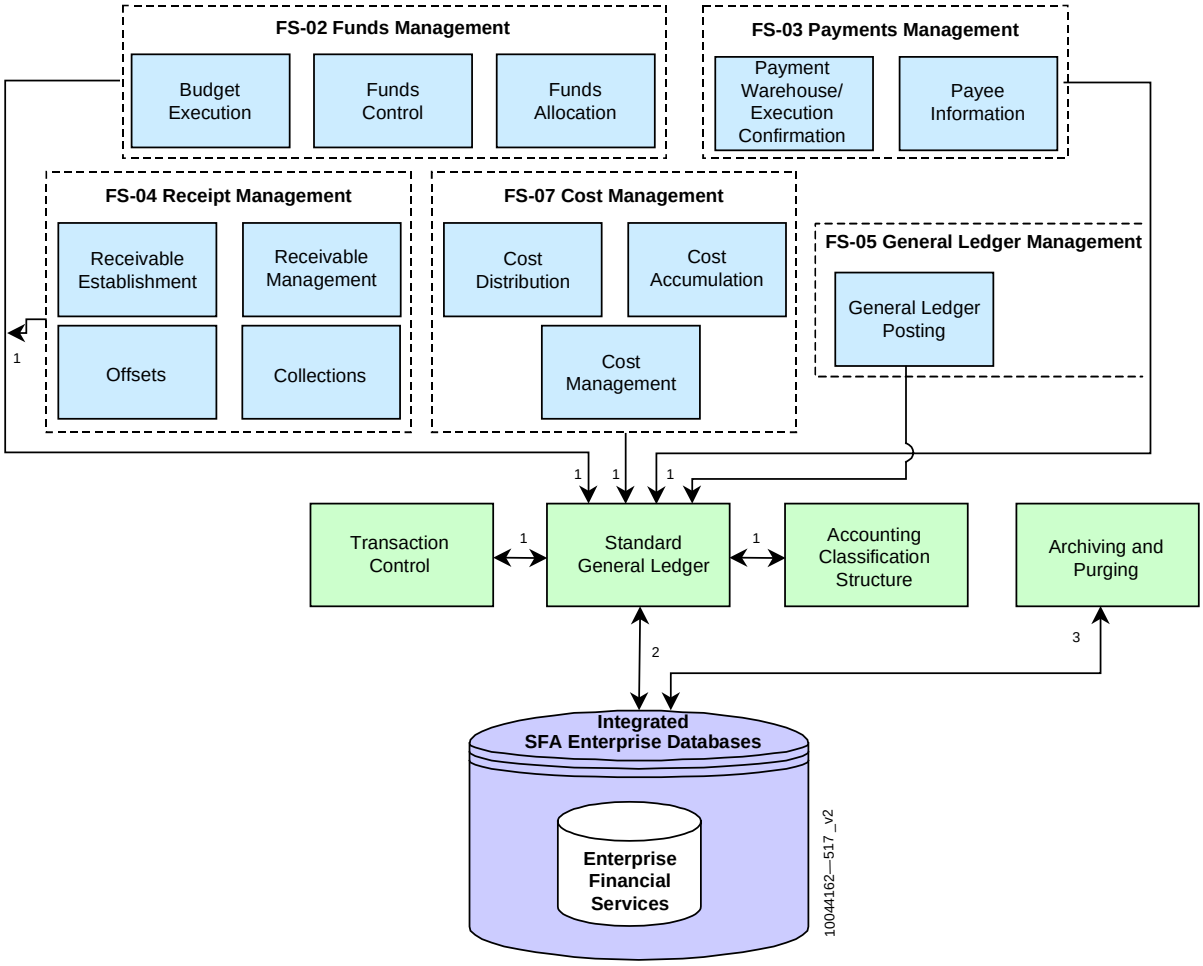
The Payment Management subprocess is primarily responsible for processing all SFA payments, receiving school drawdown requests, and processing advances for Non Just-In-Time (JIT) schools. The Payment Management subprocess serves as the repository for receiving and tracking payee data for SFA. See Figure IV.B-82.

FS-04 Receipt Management

The Receipt Management subprocess maintains records for loan receivables, grant overpayments, disbursements, excess cash, and other receivables by recording, billing, monitoring, and collecting amounts due the government. See Figure IV.B-83.

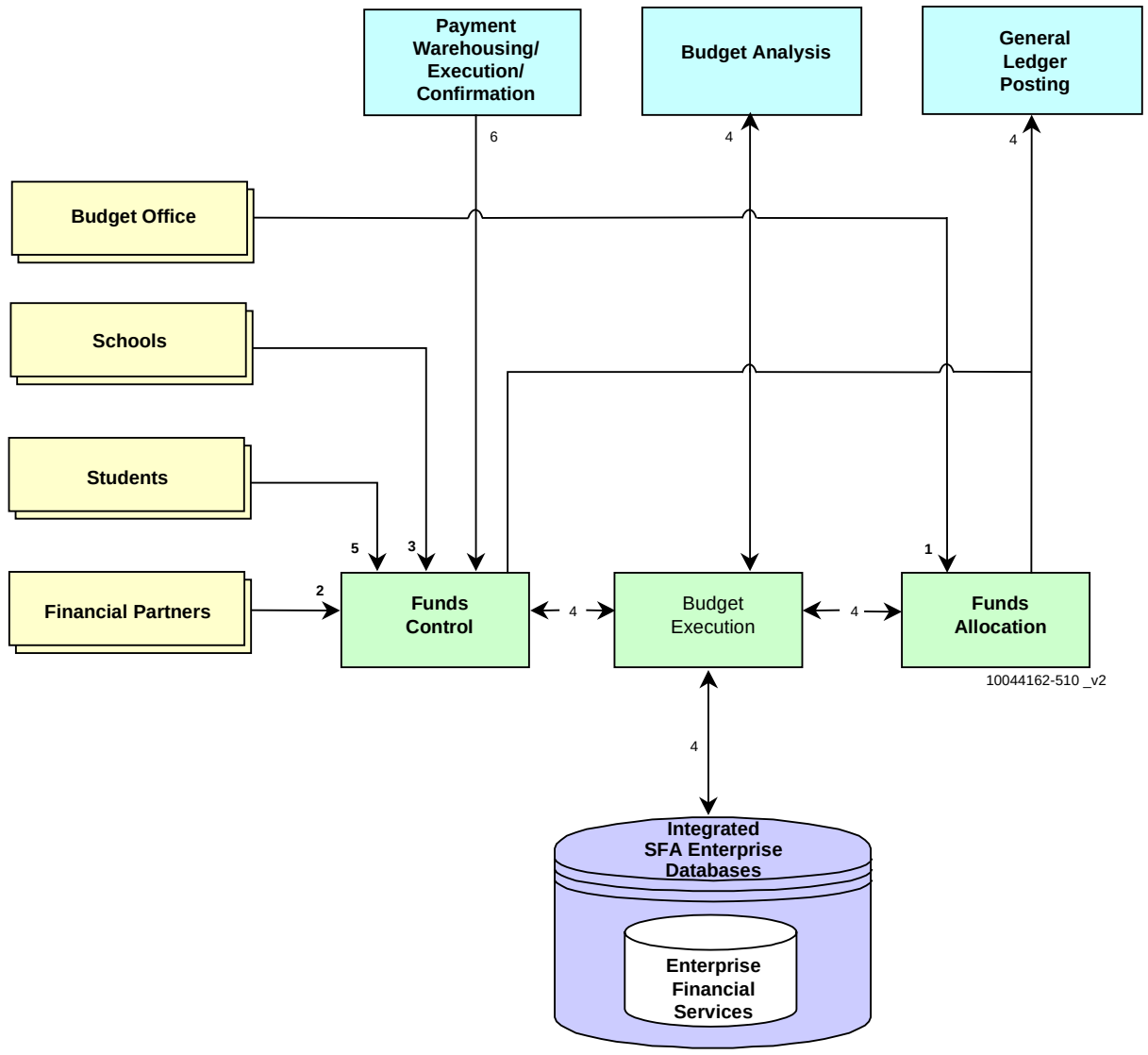
FS-05 General Ledger Management

The General Ledger Management subprocess is involved with every financial event that effects SFA, since transactions to record financial events must be posted to the SFA general ledger and/or the Department of Education general ledger. This includes transactions that first pass through Funds Management, Payment Management, and Receipt Management, in addition to Salary and Expense transactions transmitted from ED/OCFO. See Figure IV.B-84.



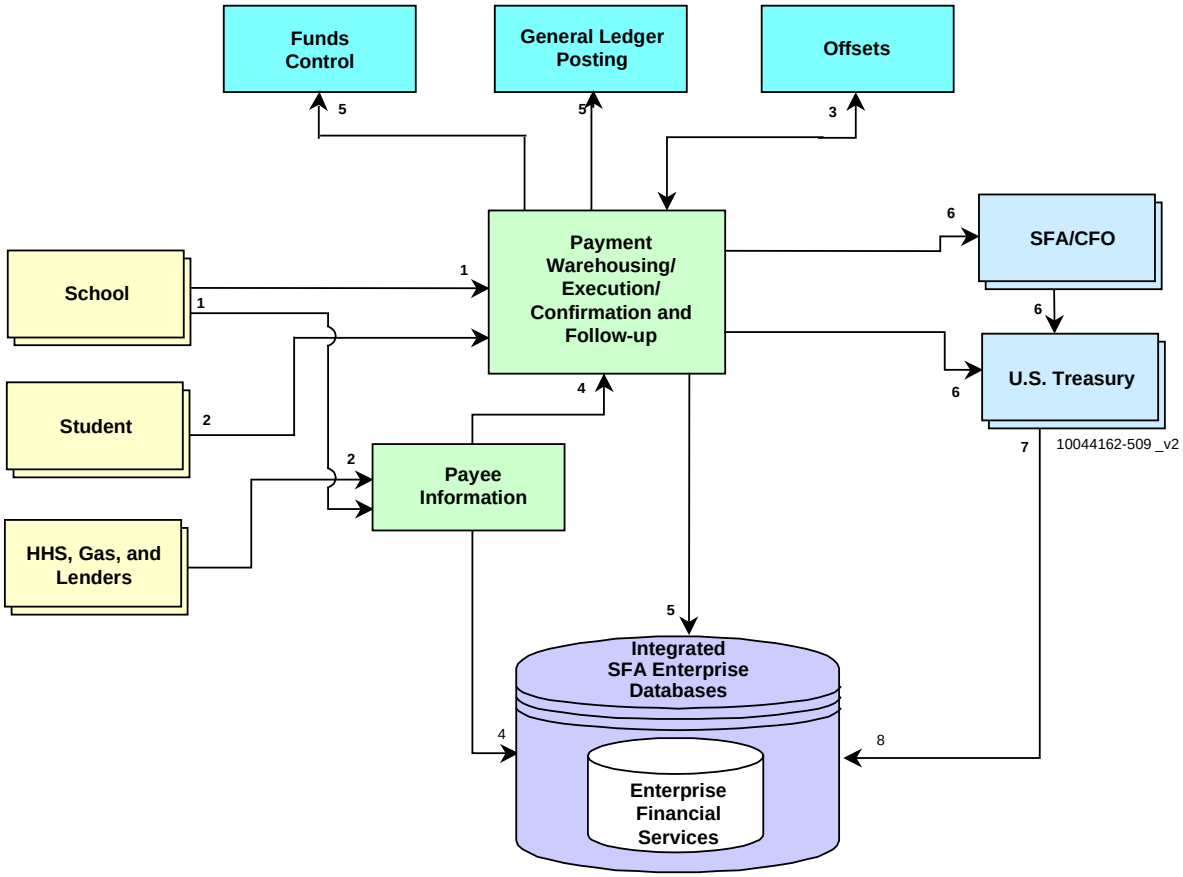
01 Data captured and edited at point-of-entry
02 Transactions and data structures in a standardized format
03 Transactions history and related audit trail information
04 Historical data

Figure IV.B-80. FS-01 Core Financial System Management



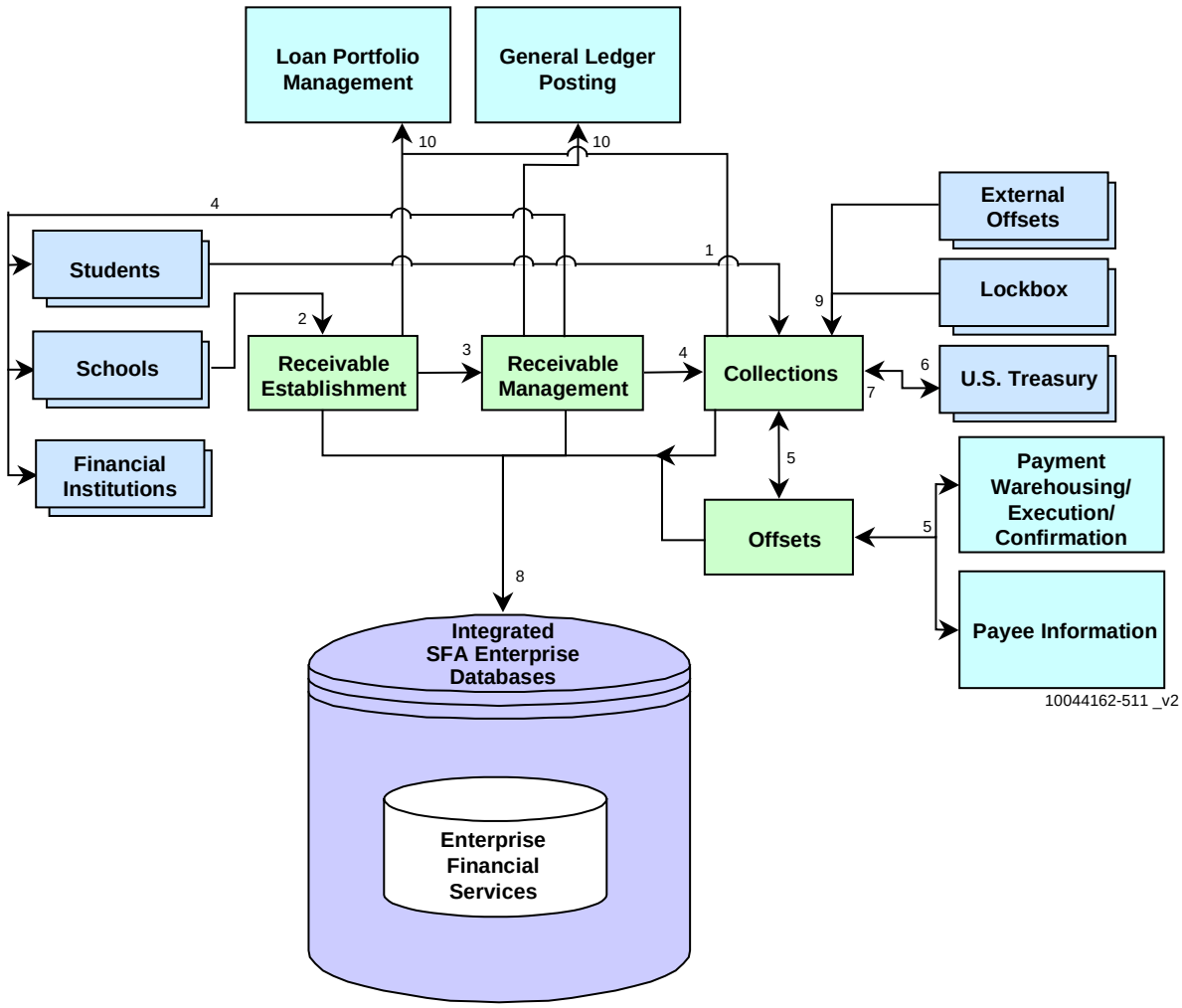
01 Appropriations, appointments, allotments, and operating plans
02 Expected lender and GA claims; budgetary control financial transactions
03 Grant and loan origination records
04 Financial transactions
05 Aid applications
06 Confirmation

Figure IV.B-81. FS-02 Funds Management



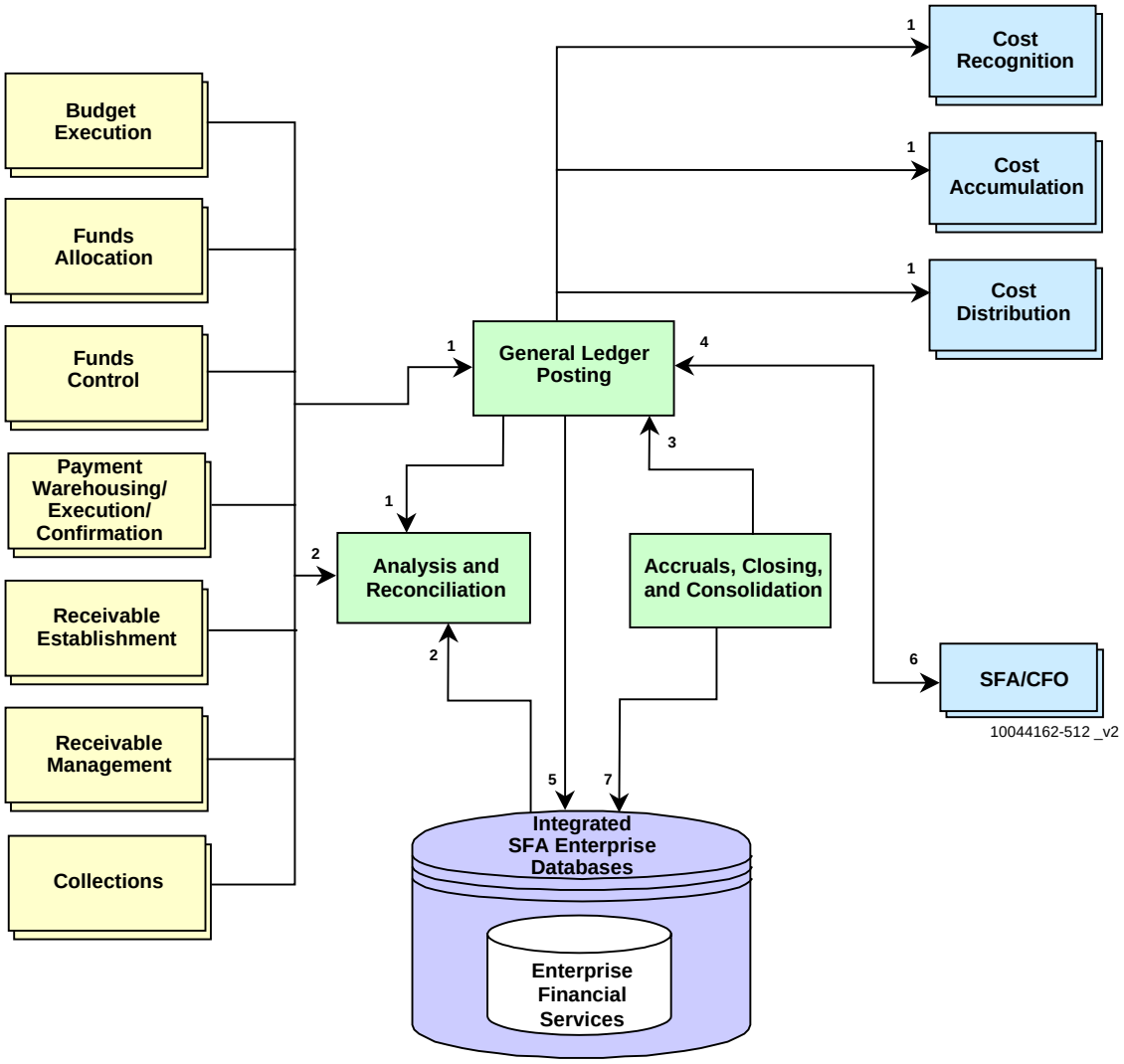
01 Drawdown requests, claims, interest/SFA, outstanding loan balance (for DL consolidation), disbursement records for JIT payment
02 Student, school, HHS, GA, and lender data
03 Offset information/collections
04 Payee information (e.g. eligibility, default rates, etc.)
05 Financial transactions
06 GA/lender payments, advances (Non-JIT schools), payments (JIT schools), and any other payments—Capability to execute payment through ED/CFO or directly to treasury
07 Payment confirmation data
08 Payment confirmation financial transaction

Figure IV.B-82. FS-03 Payment Management



01 Repayment for Grant overpayments
02 Loan receivable data, disbursement records, excess cash, drawdown request data, etc.
03 Established receivable and billing data
04 Billing data and statement of account
05 Offset information/collections
06 Deposit ticket
07 Confirmation of deposit
08 Receivable data, collection letters, delinquent account data, etc.
09 External offset and lockbox collections (e.g. Employer, etc.)
10 Financial transactions

Figure IV.B-83. FS-04 Receipt Management



01 Financial transactions
02 Subsidiary ledger information
03 Accrual transactions and closing entries; identification of new reporting period
04 S&E financial transactions
05 Financial transaction general ledger updates (including S&E)
06 Summary financial transactions
07 Financial transaction data

Figure IV.B-84. FS-05 General Ledger Management

FS-06 Financial Management Reporting

The Financial Management Reporting subprocess generates various custom and standard financial reports that support effective financial management as well as the ability for all users to access appropriate information. See Figure IV.B-85.

FS-07 Cost Management

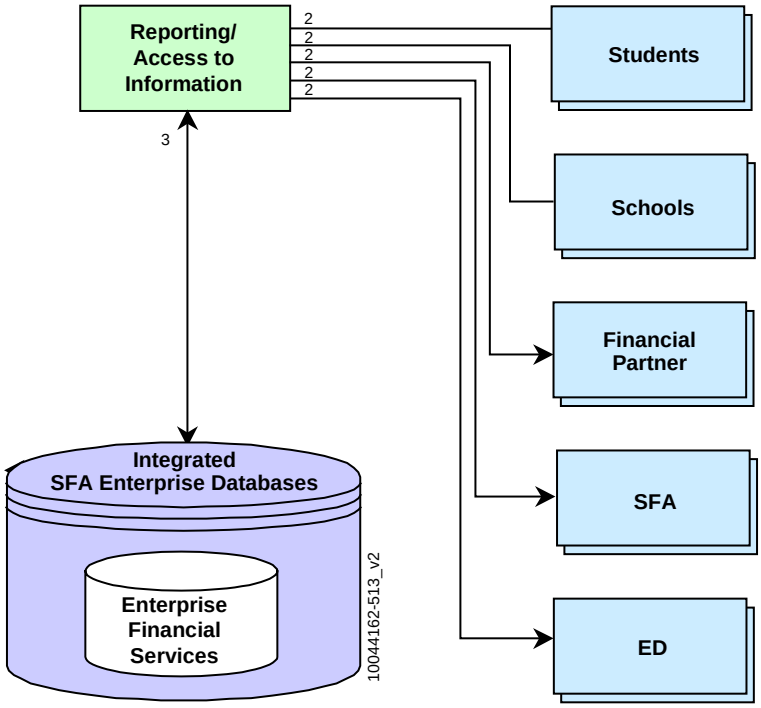
The Cost Management subprocess enables SFA to monitor and manage costs by cost object, activity, process, SFA organization unit, aid program, loan type, school, and financial partner. Transactions recorded in the General Ledger are passed to Cost Management. See Figure IV.B-86.

FS-08 Loan Portfolio Management

The Loan Portfolio Management subprocess ensures that SFA can evaluate program effectiveness and minimize program costs for Direct Loans by exchanging data with the Cost, Payment, and Receipt Management subprocesses. See Figure IV.B-87.

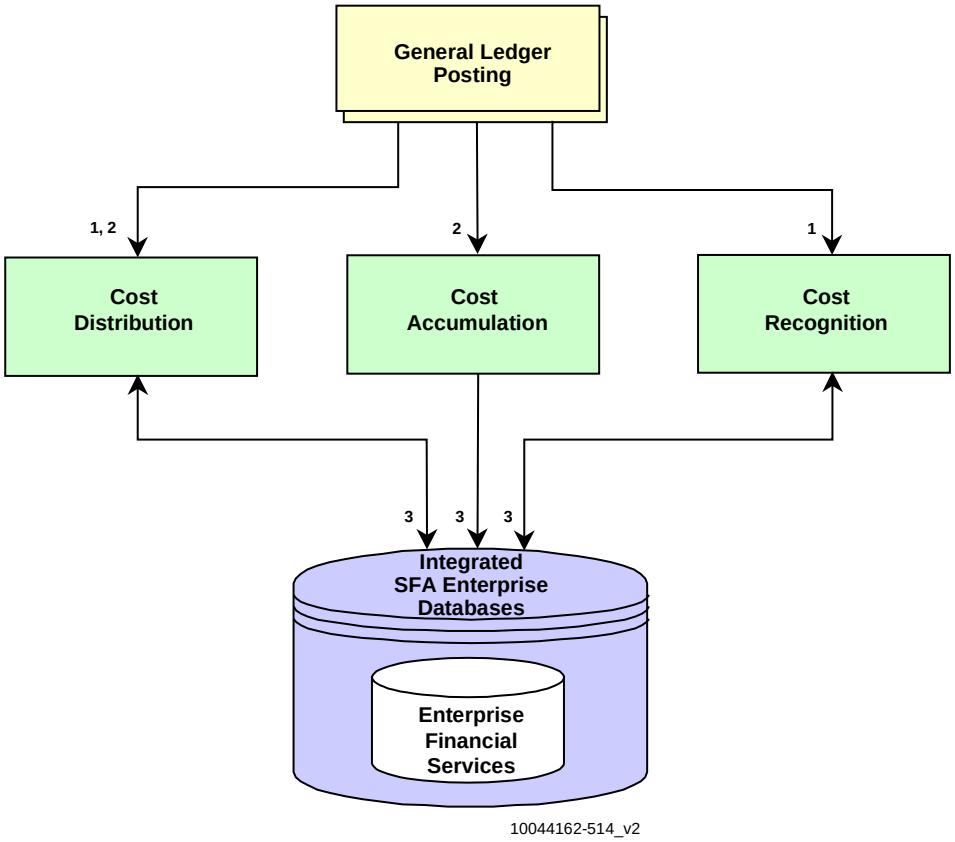
FS-09 Budget Analysis and Development

The Budget Analysis and Development subprocess establishes a baseline for budget maintenance, tracks original submissions and modifications, and provides data to be included in the President's Budget. The status of the budget request is tracked as it moves through the process until appropriations are enacted. See Figure IV.B-88.



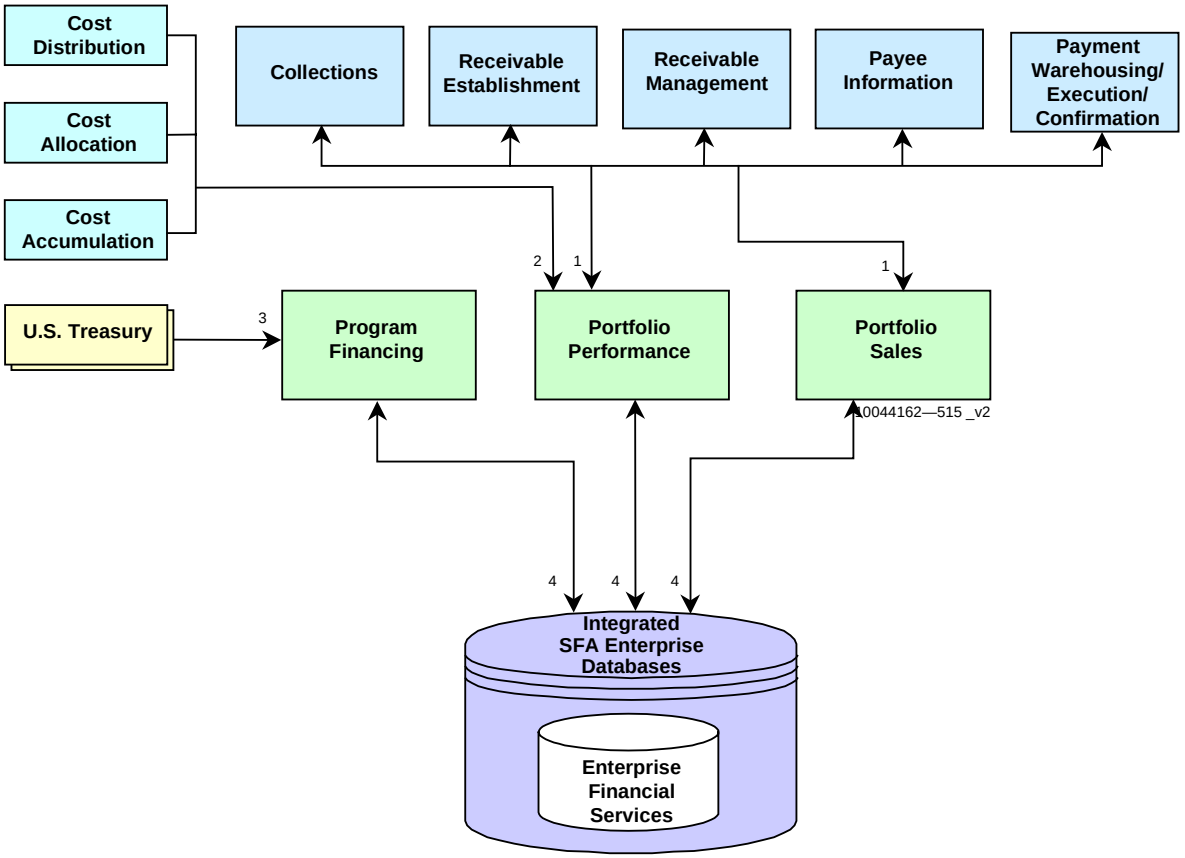
01 Request for FMS data (e.g., school balance inquiries, budget control amounts, etc.)
02 Customized and standard report results (secured by access rights)
03 Real-time FMS Data

Figure IV.B-85. FS-06 Financial Management Reporting



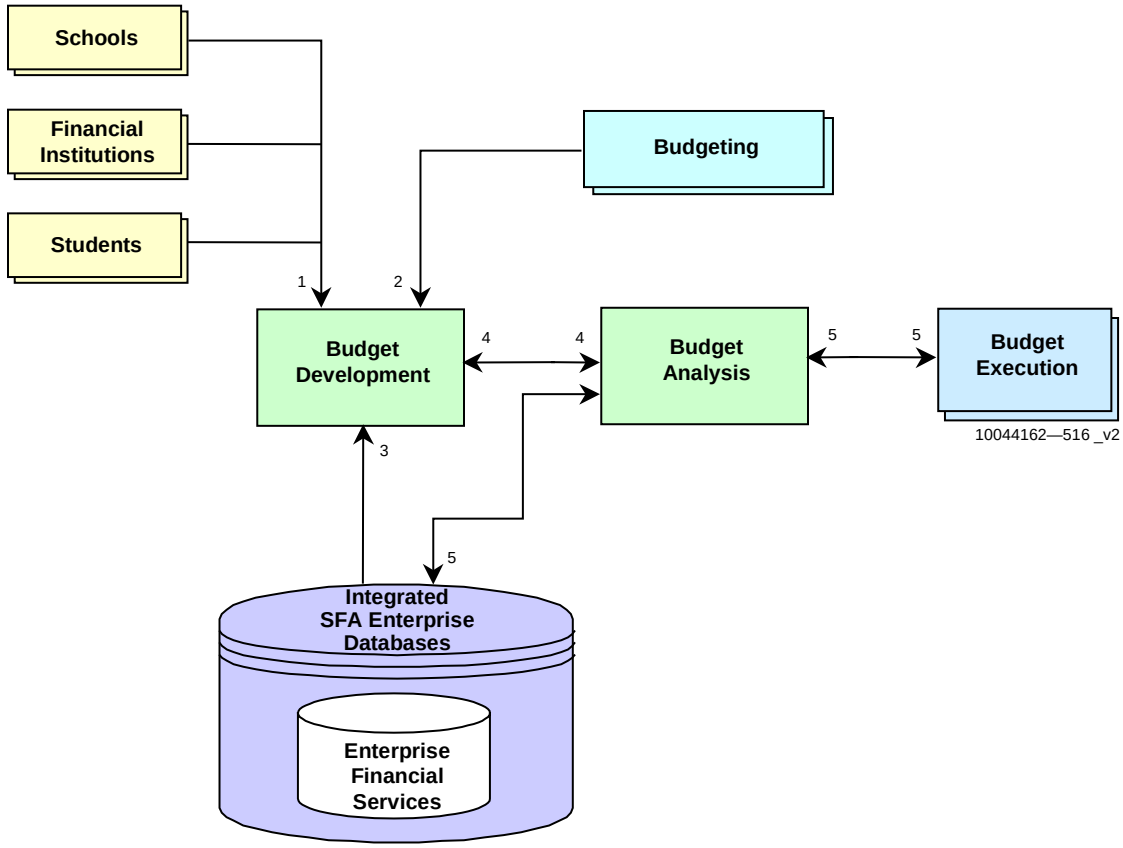
01 Program, S&E, travel, contract, and any other goods and services costs
02 Fees, royalties, rents, and other agency usage costs
03 Financial transaction data

Figure IV.B-86. FS-07 Cost Management



01 Loan data (e.g., disbursement, budget execution, receivables, receipt/collection, etc.)
02 Administrative cost and asset data
03 Interest rates
04 Financial transaction data

Figure IV.B-87. FS-08 Loan Portfolio Management



01 Expectations
02 New programs and regulations
03 Program and S&E budget information
04 Budget/updates and changes to budget
05 Financial transactions

Figure IV.B-88. FS-09 Budget Analysis and Development

Enterprise Services – Human Resources Management Subprocess Flows

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III

HR-01 Staffing

The subprocess flow illustrated in Figure IV.B-89 depicts business interactions that govern the Staffing subprocess. This subprocess defines staffing requirements, solicits staff, processes new hires, and manages employee status.

HR-02 Compensation and Benefits

The subprocess flow illustrated in Figure IV.B-90 depicts business interactions that govern the Compensation and Benefits subprocess. This subprocess processes employee time reporting and develops/administers employee compensation and benefits packages, including a periodic review of jobs and salaries, incentive strategies based on PBO objectives, management of payroll deductions, and processing of employee requests for benefit changes.

HR-03 Employee Development

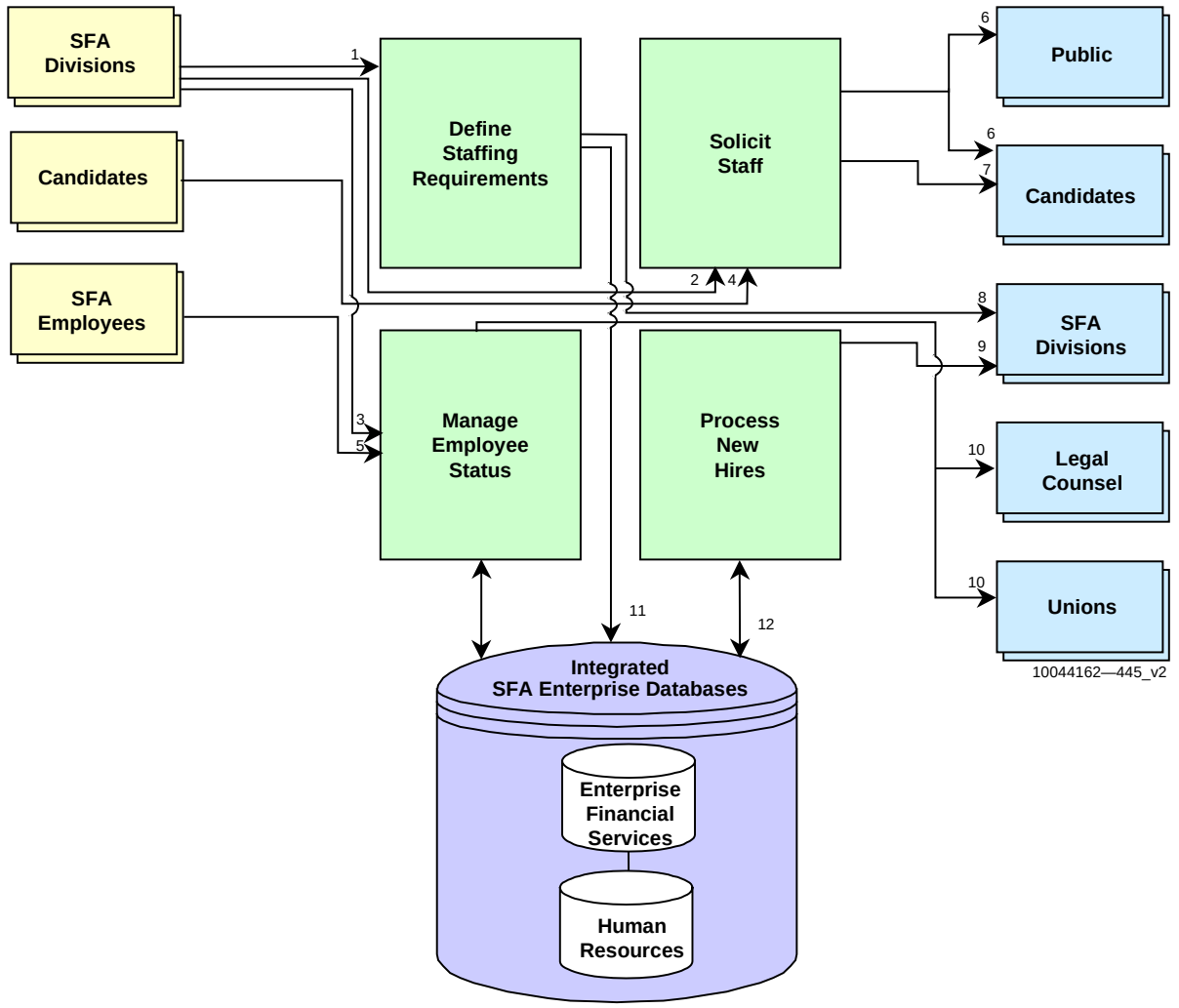
The subprocess flow illustrated in Figure IV.B-91 depicts business interactions that govern the Employee Development subprocess. This subprocess develops and administers employee development plans, including the establishment of training/education needs, monitoring of employee training/education, and communications of internal and external training/education resources. It also includes development of department/group/project training needs and the creation and evaluation of training programs and materials.

HR-04 Employee Relations/EEO

The subprocess flow illustrated in Figure IV.B-92 depicts business interactions that govern the Employee Relations/EEO subprocess. This subprocess documents, reviews and takes actions on issues affecting SFA employees including performance and conduct-based actions, workplace disputes, and appeals.

HR-05 Labor Relations

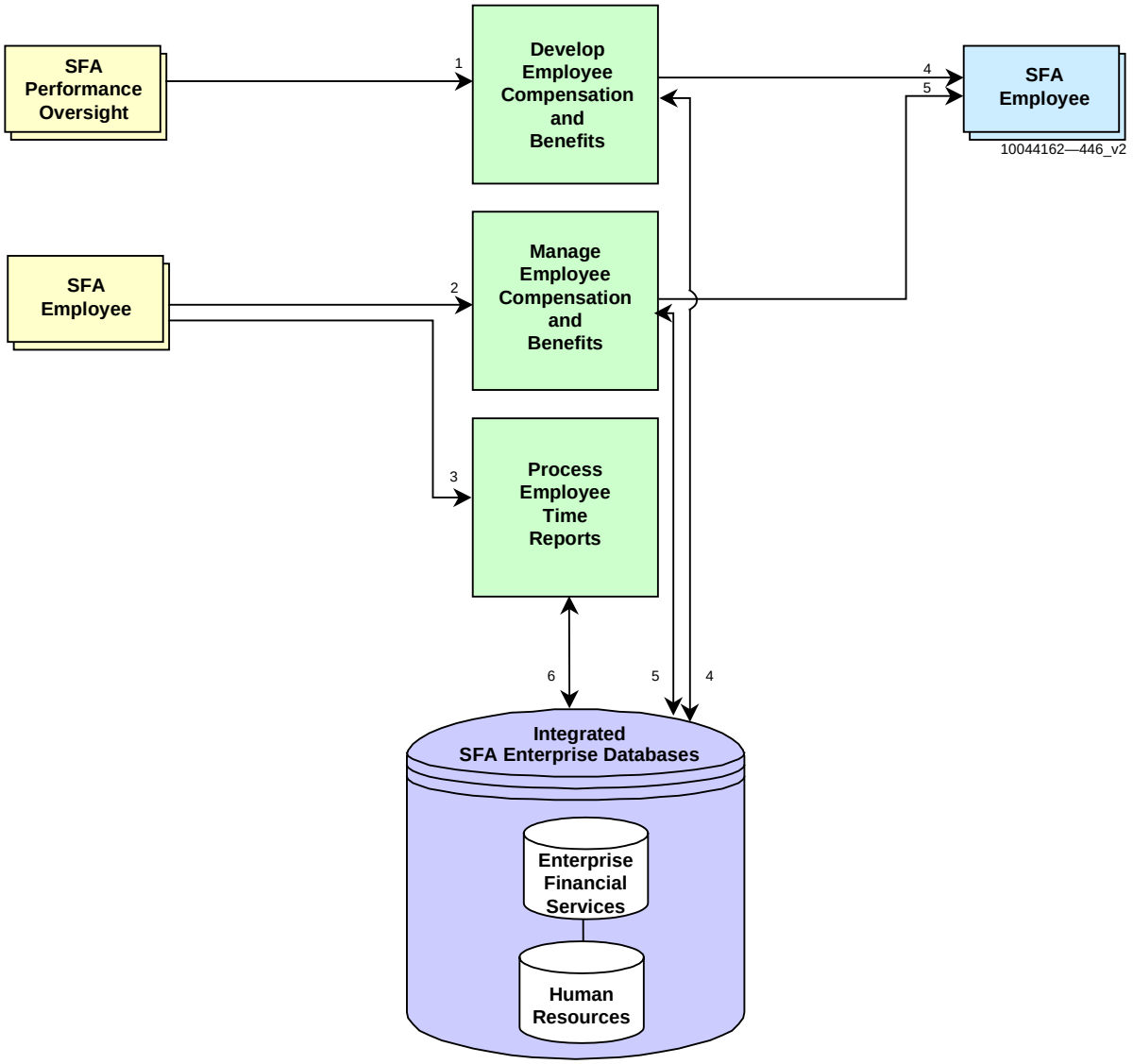
The subprocess flow illustrated in Figure IV.B-93 depicts business interactions that govern the Labor Relations subprocess. This subprocess includes processes to manage labor disputes and to proactively identify issues and actions to avoid conflicts.



01 Staffing requirements
02 Recommendations for hire
03 Recommendations for promotion, request for office moves/equipment
04 Resumes/applications
05 Employee resignations
06 Advertisements, job descriptions
07 Offer packages/rejection letters
08 Job descriptions
09 Notification of security requirements; employee space, technology, equipment, and communications needs
10 Personnel documents
11 Approved staffing requirements, job descriptions
12 Information on new hires

Figure IV.B-89. HR-01 Staffing

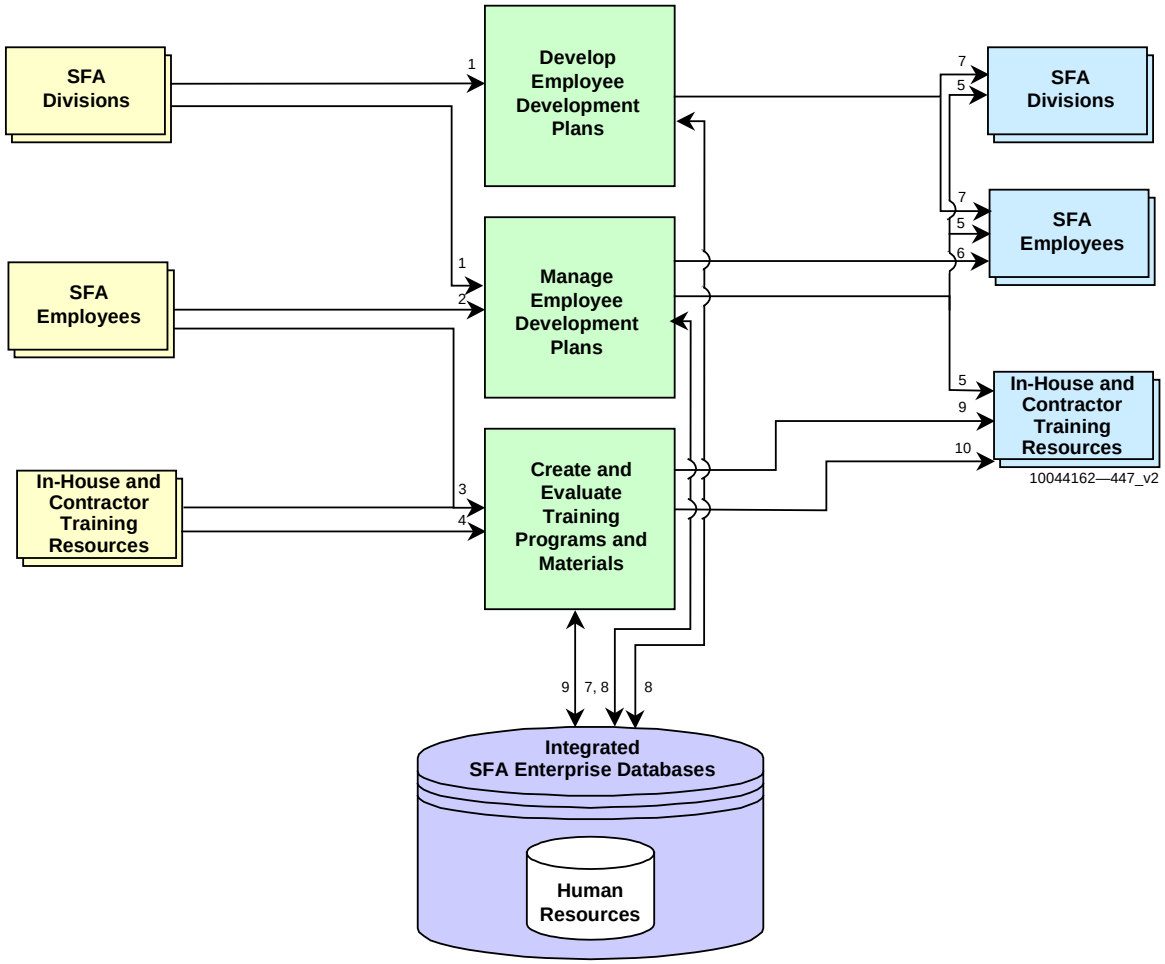
The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 PBO Objectives
02 Benefit requests
03 Employee time reporting
04 Benefit options
05 Benefit balances
06 Employee time

Figure IV.B-90. HR-02 Compensation and Benefits

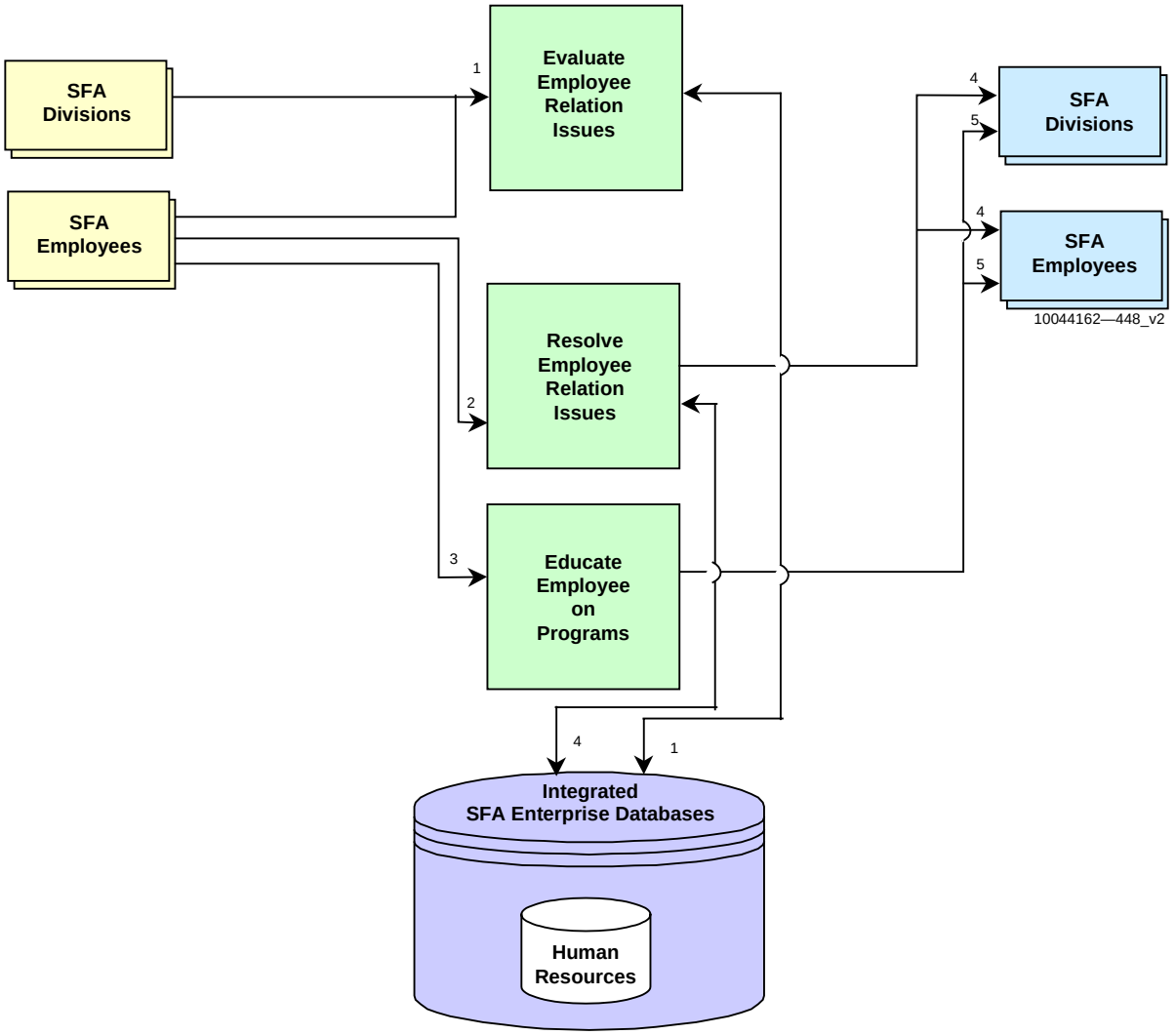
The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 Assessment of individual/group training needs
02 Request for information
03 Course evaluations
04 Course materials
05 Curriculum, training materials
06 Information internal/external training sources
07 Gaps in employee training
08 Employee development plans
09 Training programs
10 Training materials

Figure IV.B-91. HR-03 Employee Development

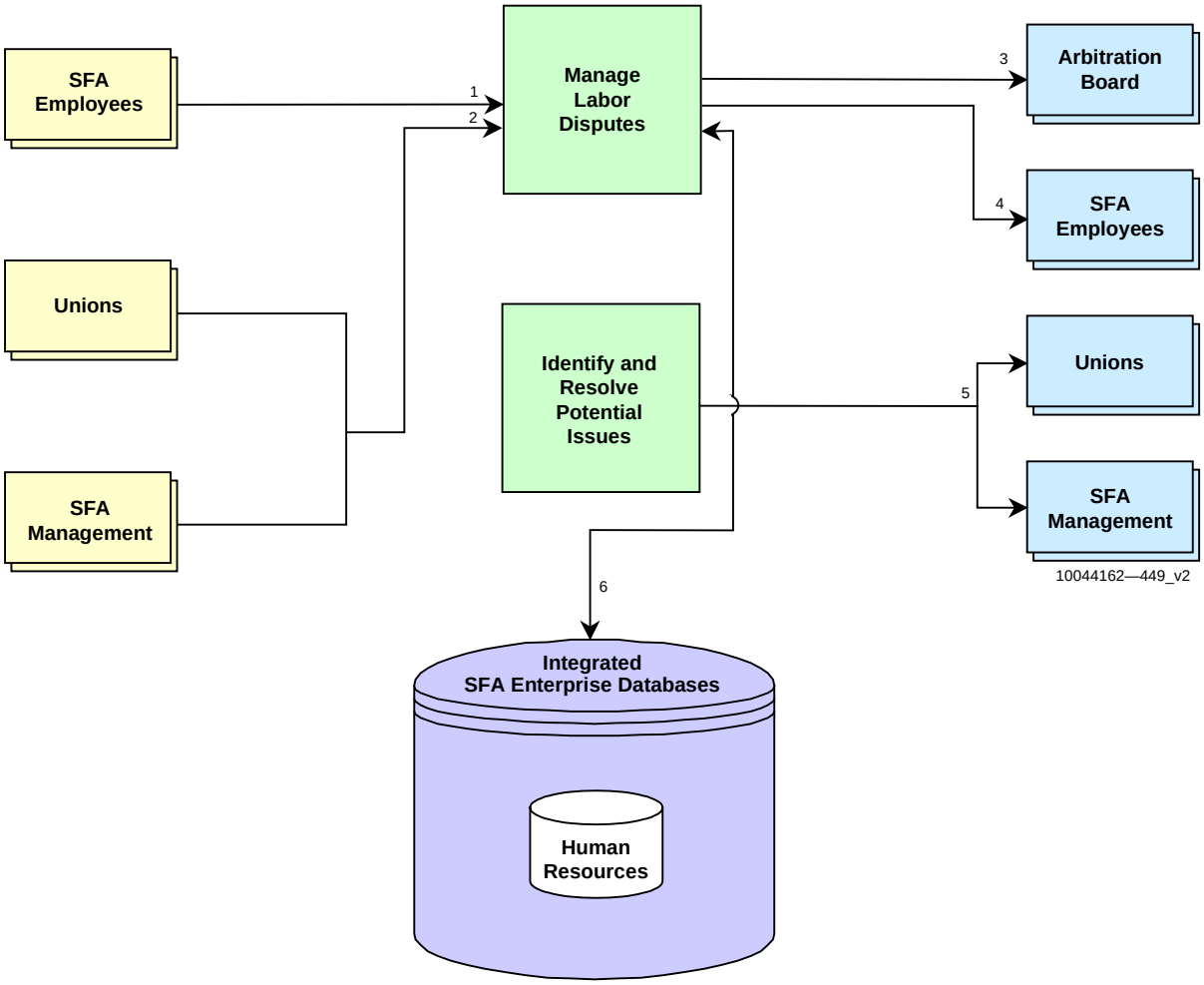
The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 Workplace disputes
02 Appeals
03 Requests for information
04 Dispute resolution
05 Information on programs (diversity awareness, workers compensation, and employee assistance)

Figure IV.B-92. HR-04 Employee Relations/EEO

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 Requests for cost/benefit analysis
02 Grievances, complaints and negotiation requirements
03 Request for arbitration
04 Management implementation of cost/benefit analysis
05 Policies and potential issues
06 Labor disputes

Figure IV.B-93 HR-05 Labor Relations

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III

HR-06 Human Resources Policy

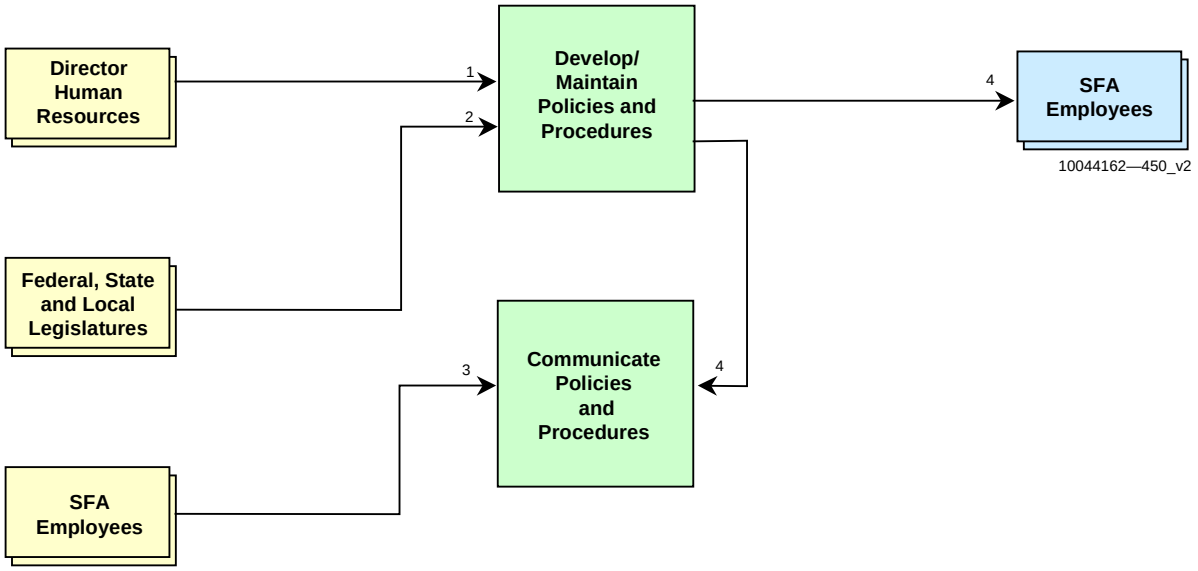
The subprocess flow illustrated in Figure IV.B-94 depicts business interactions that govern the Human Resources Policy subprocess. This subprocess focuses on the development, maintenance and dissemination of human resource policies and procedures for SFA employees.

HR-07 Employee Performance Management

The subprocess flow illustrated in Figure IV.B-95 depicts business interactions that govern the Employee Performance Management subprocess. This subprocess involves the establishment of performance goals for employees and the evaluation of how well employees meet those goals.

HR-08 Organization Design and Development

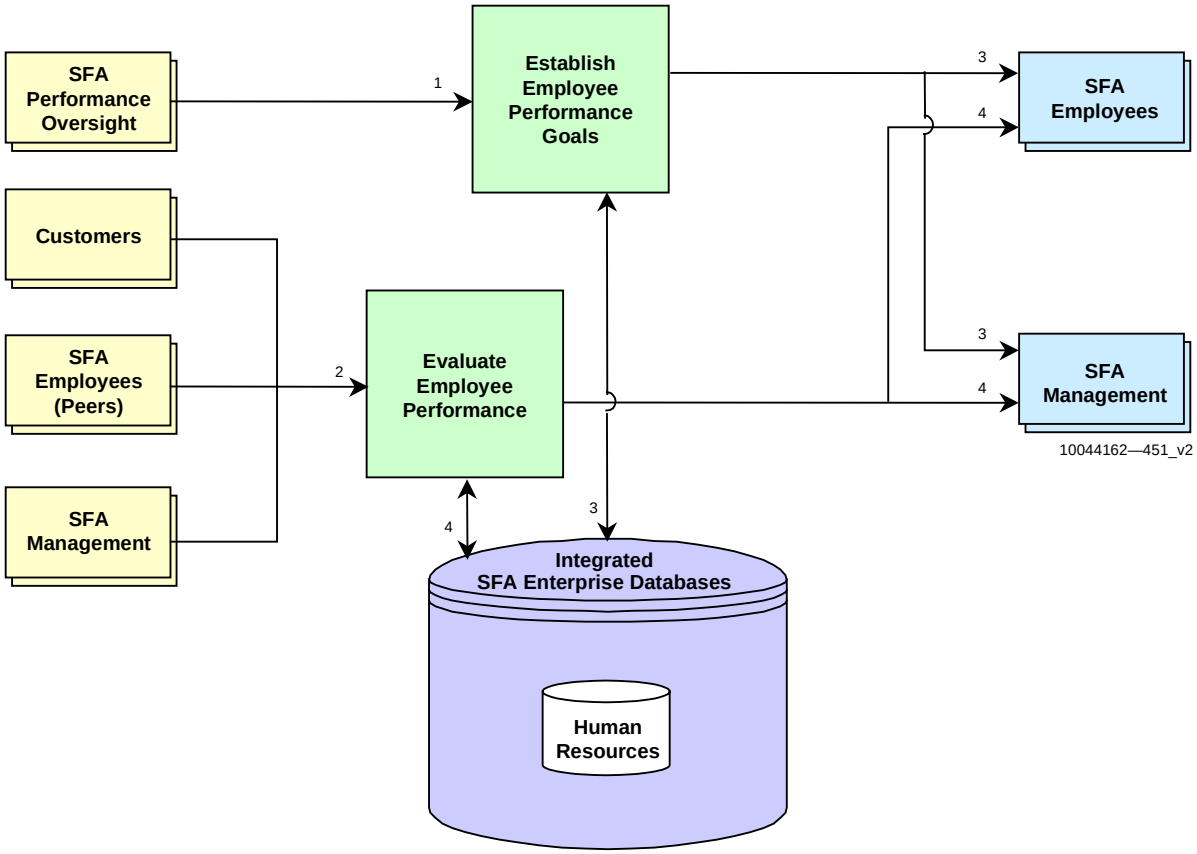
The subprocess flow illustrated in Figure IV.B-96 depicts business interactions that govern the Organization Design and Development subprocess. This subprocess evaluates and assesses the impact and effectiveness of change initiatives on employees and the organization as a whole, and conducts competency assessments to ensure the skills inventory supports the SFA mission.



01 Organization's mission, vision, and values
02 Government mandates, legislative changes
03 Requests for HR policy and procedures
04 HR policies and procedures

Figure IV.B-94. HR-06 Human Resources Policy

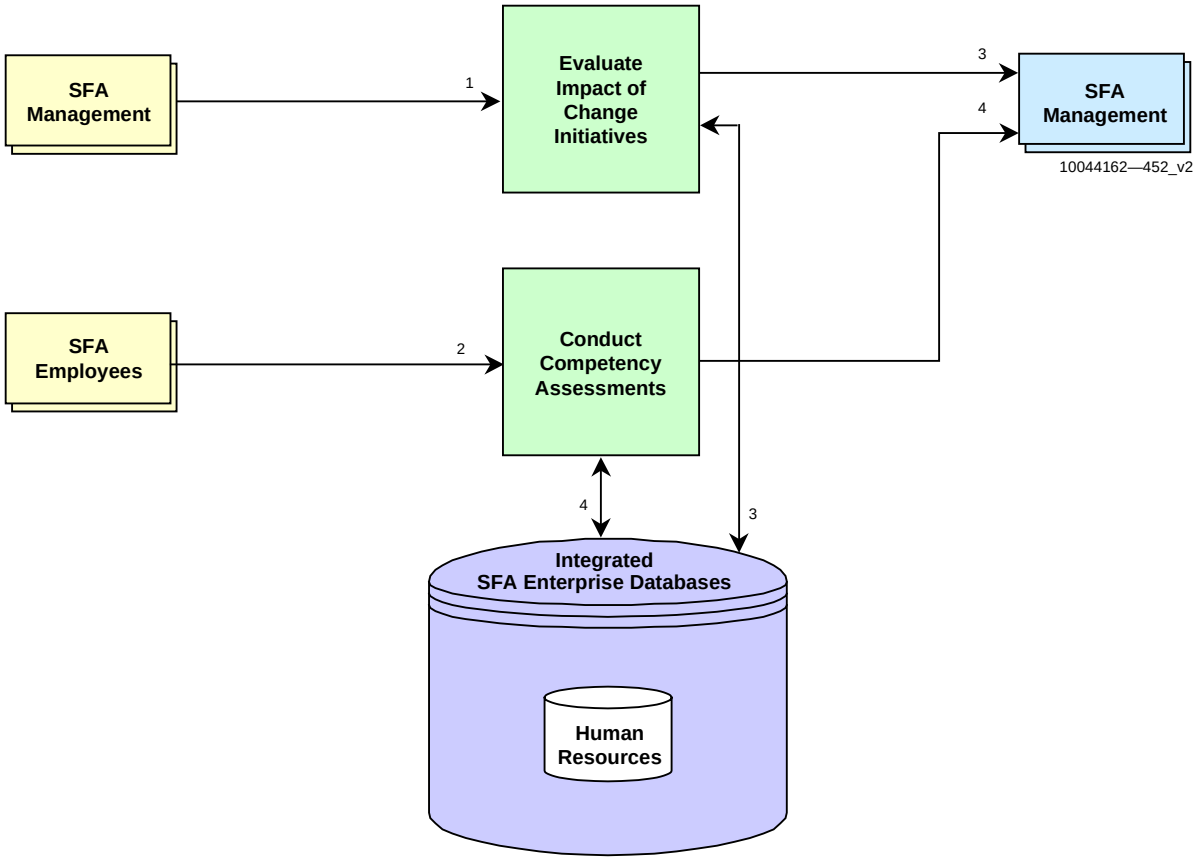
The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 PBO objectives
02 Employee evaluations
03 Performance targets, review criteria, schedules, performance based rewards/incentives
04 Performance review

Figure IV.B-95. HR-07 Employee Performance Management

The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III



01 Change initiatives, organization mission
02 Skills survey
03 Recommended organizational structures
04 Recommended organizational skill enhancements

Figure IV.B-96. HR-08 Organization Design and Development
The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III

Enterprise Services – IT Management Subprocess Flows

The following diagrams show the different interfaces and the interactions of the IT Management subprocess.

IT-01 IT Investment Management

The subprocess flow illustrated in Figure IV.B-97 depicts business interactions that govern the Investment Management subprocess. This subprocess evaluates IT industry trends, reviews investment requests against the stated SFA common operating environment (COE) and organizational priorities, and enforces standards.

IT-02 IT Production and Maintenance

The subprocess flow illustrated in Figure IV.B-98 depicts business interactions that govern the Production and Maintenance subprocess. This subprocess includes routine and non-routine maintenance, evaluations of service level agreement (SLA) requirements against actual performance, and tracking of resource consumption.

IT-03 IT Systems Development Life Cycle

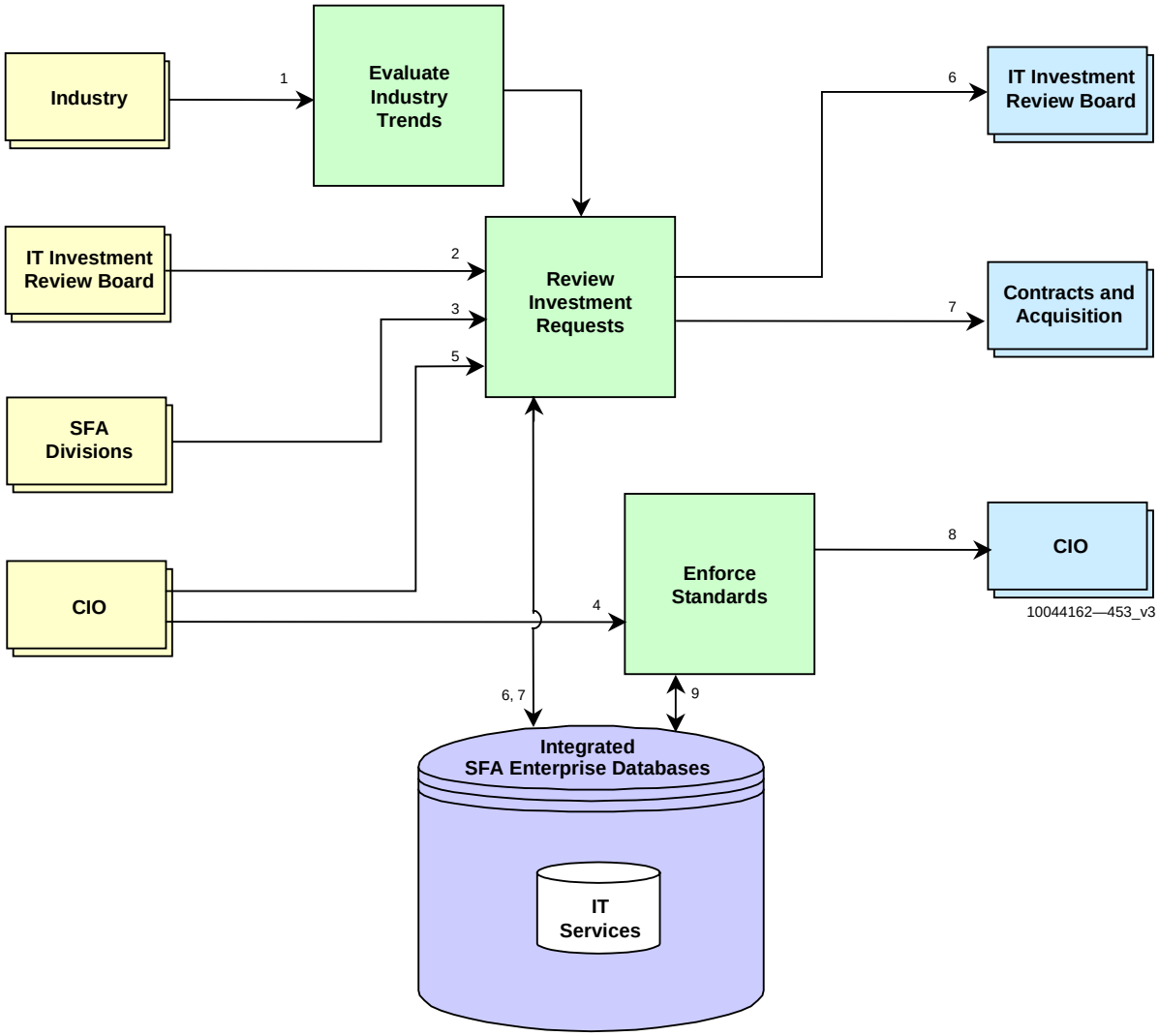
The subprocess flow illustrated in Figure IV.B-99 depicts business interactions that govern the IT Systems Development Life Cycle subprocess. This subprocess includes systems development (planning, analysis, design, build, test, rollout and evolution of business applications), researches new technologies, and provides advice to management on application of technologies.

IT-04 IT Capacity Management and Performance Tuning

The subprocess flow illustrated in Figure IV.B-100 depicts business interactions that govern the IT Capacity Management and Performance Tuning subprocess. This subprocess includes capacity forecasting, monitoring of system usage, and performance tuning of SFA hardware, software and networks.

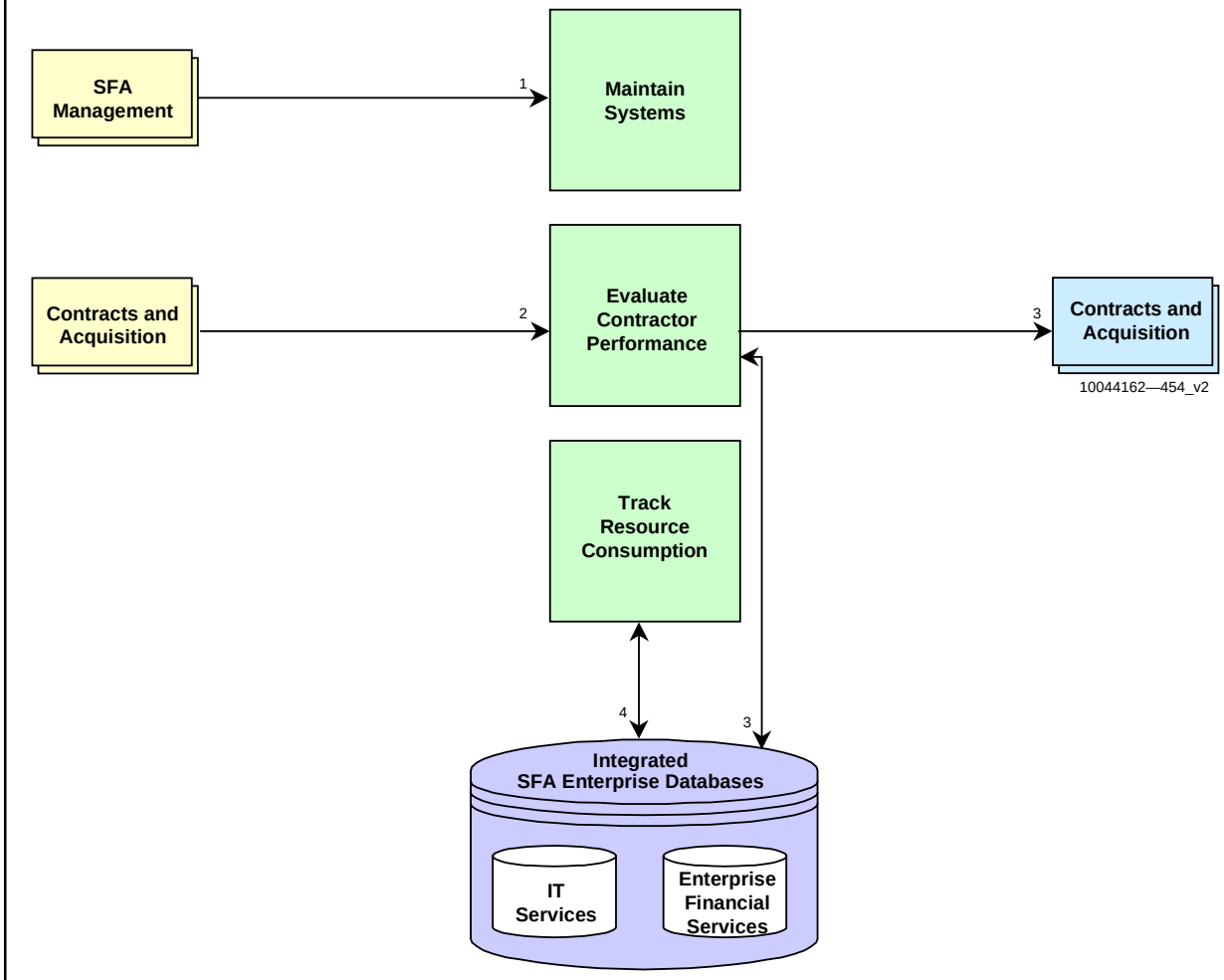
IT-05 IT Systems Availability and Contingency Planning

The subprocess flow illustrated in Figure IV.B-101 depicts business interactions that govern the IT Systems Availability and Contingency Planning subprocess. This subprocess performs risk-mitigation tasks such as developing contingency plans and emergency procedures. It also involves the actual recovery of data, systems, and hardware in the event of a failure.



01 IT trends and enabling technology
02 Organizational priorities
03 Requests for IT-related investment resources
04 Common operating environment
05 Metrics
06 Recommendations for IT investments
07 Acquisition packages
08 Standards violations
09 Standards

Figure IV.B-97. IT-01 IT Investment Management



01 Request for maintenance and services
02 Service level agreements (SLAs)
03 Discrepancies in system performance against SLAs; recommendations for service level requirements
04 Usage, cost drivers

Figure IV.B-98. IT-02 IT Production and Maintenance

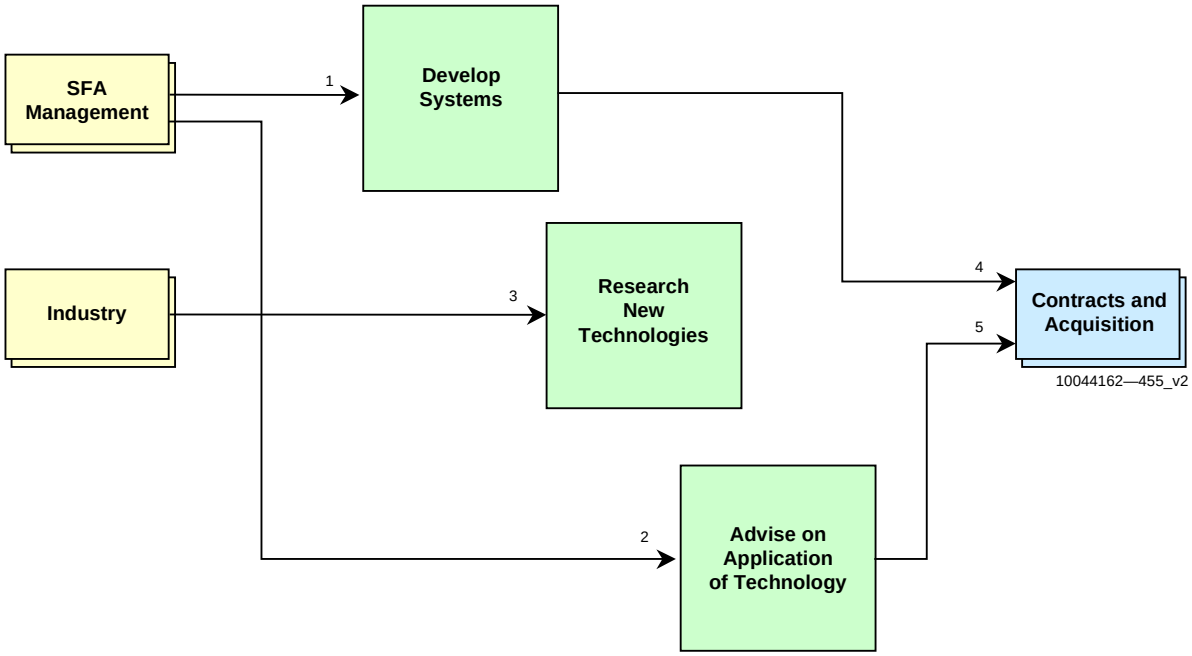
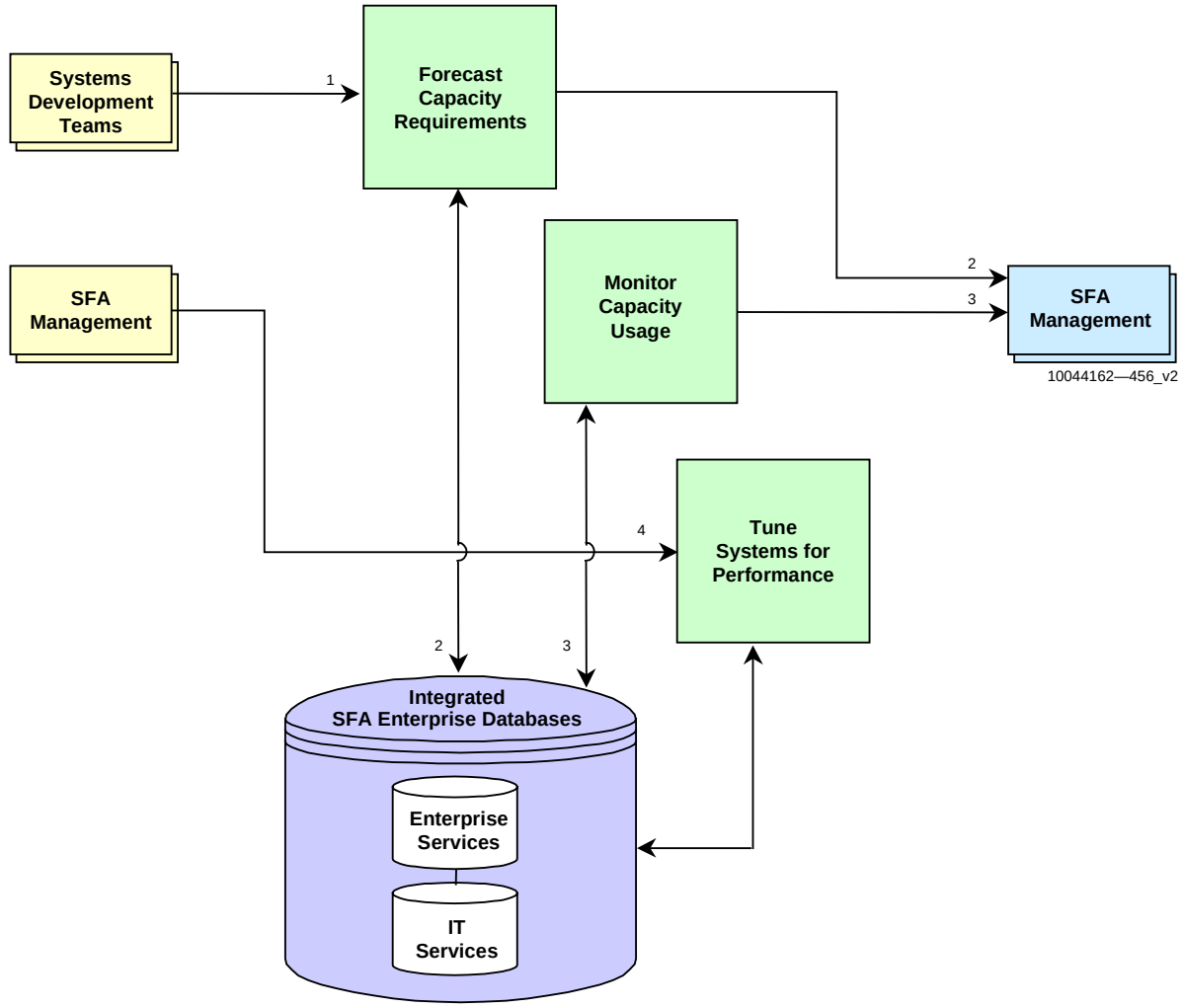
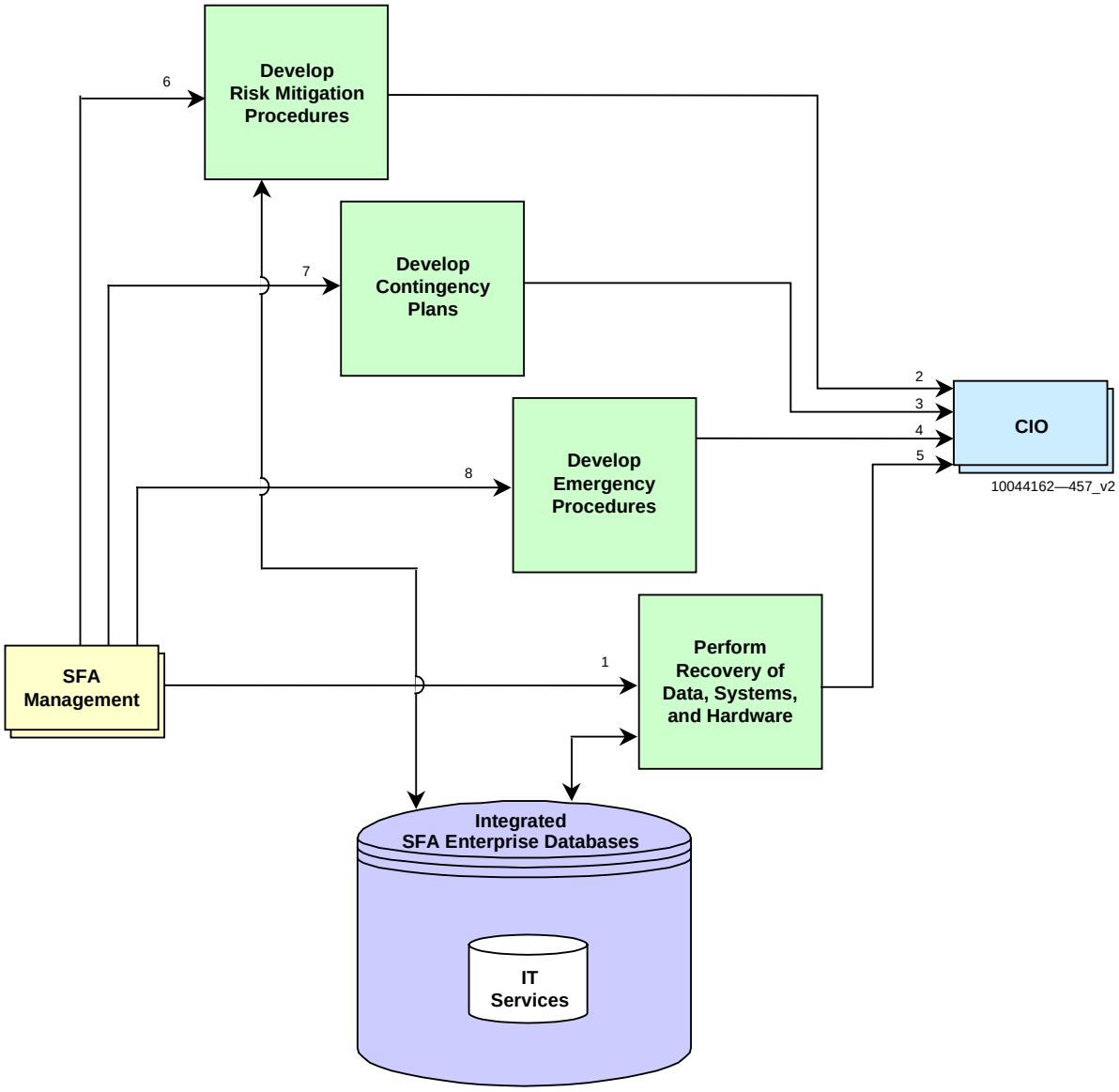


Figure IV.B-99. IT-03 IT Systems Development Lifecycle



01 Application processing and storage capacity requirements
02 Total system capacity requirements
03 Utilization reports
04 Request to improve system performance

Figure IV.B-100. IT-04 IT Capacity Management and Performance Tuning



01 Report of failure
02 Contingency plans and backup systems
03 Procedures to mitigate risk of failure
04 Procedures and instructions for emergency breakdown
05 Post recovery reviews
06 Initializing risk mitigation standards and procedures
07 Establishing contingency plans
08 Establishing standards and procedures to emergency breakdown

Figure IV.B-101. IT-05 IT Systems Availability and Contingency Planning

IT-06 IT Systems Security and Privacy

The subprocess flow illustrated in Figure IV.B-102 depicts business interactions that govern the IT Systems Security and Privacy subprocess. This subprocess develops and enforces security procedures, monitors systems for viruses, and conducts security audits. A security framework is defined and described for use in security architecture development.

IT-07 IT Standards and Methodology

The subprocess flow illustrated in Figure IV.B-103 depicts business interactions that govern the IT Standards and Methodology subprocess. This subprocess develops standards for data and a common operating environment.

IT-08 IT Partner Interface Management

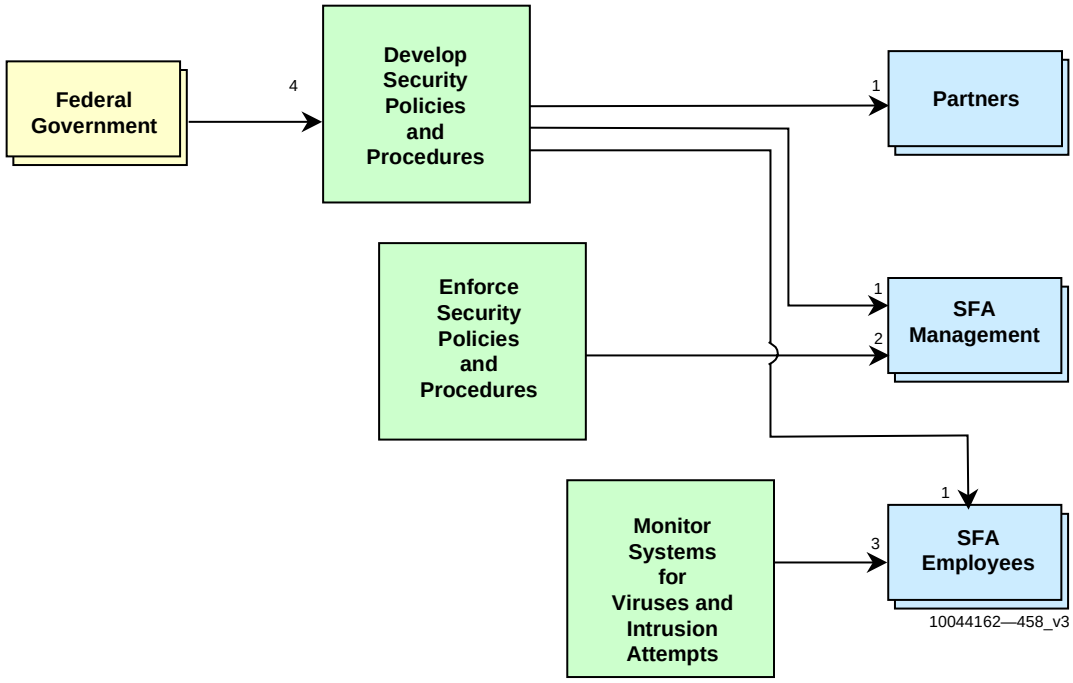
The subprocess flow illustrated in Figure IV.B-104 depicts business interactions that govern the IT Partner Interface Management subprocess. This subprocess includes the development of interface requirements, and tracking of partner performance.

IT-09 IT Configuration Management

The subprocess flow illustrated in Figure IV.B-105 depicts business interactions that govern the IT Partner Interface Management subprocess. This subprocess includes the traditional functions of CM: identification of configurable items, control of configurable items (including releases), status accounting, and auditing. It also includes the development of CM plans and procedures for use in development efforts.

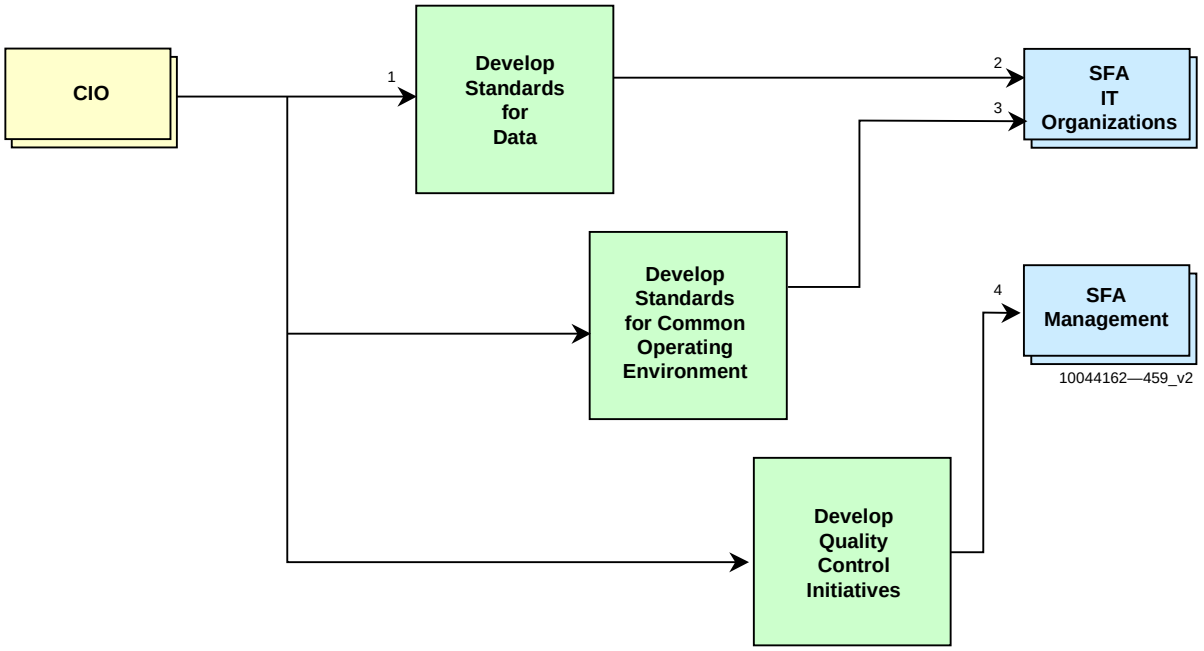
IT-10 IT Quality Assurance

The subprocess flow illustrated in Figure IV.B-106 depicts business interactions that govern the IT Partner Interface Management subprocess. This subprocess includes reviews and audits of work products against standards, and assessment of cost/schedule status.



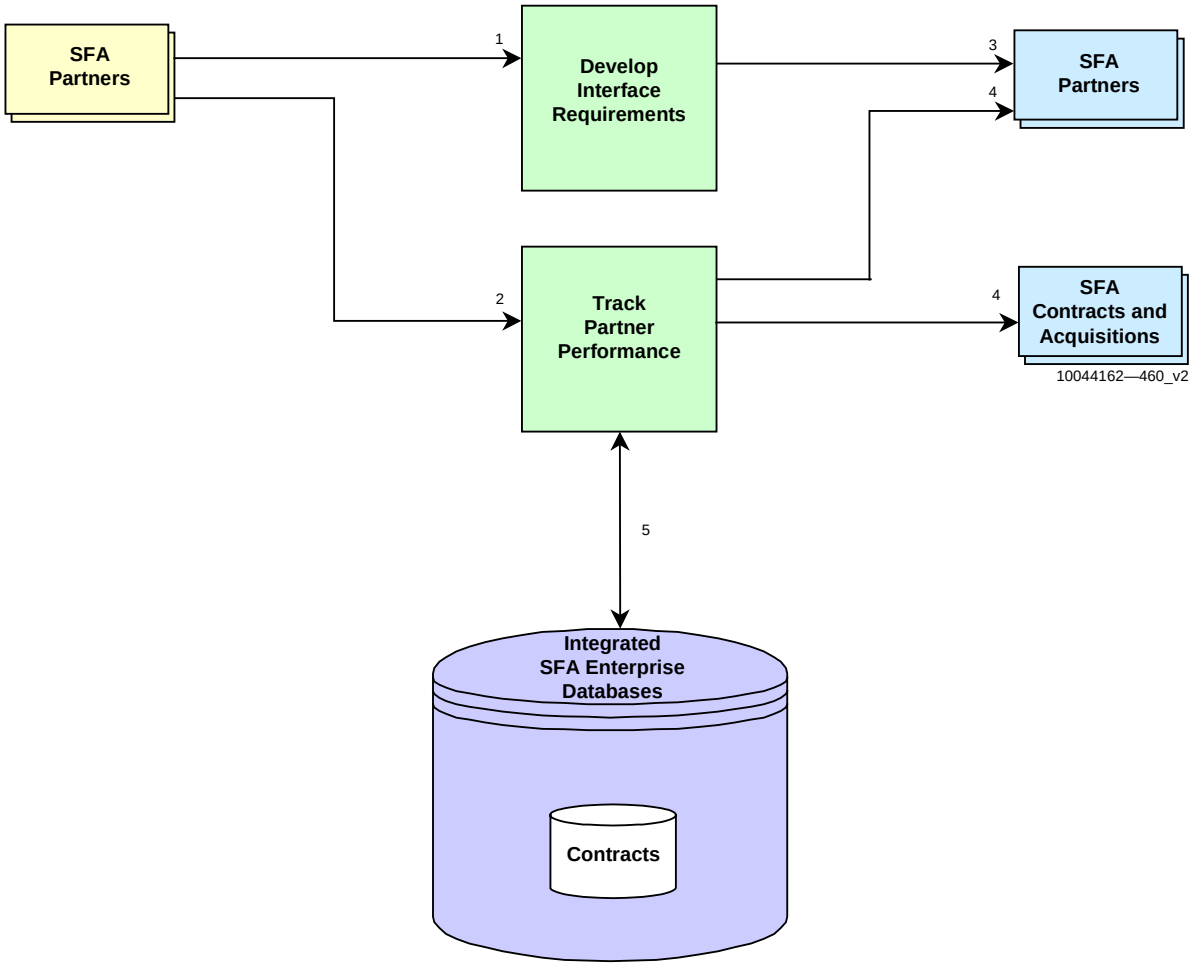
01 Policies and procedures, privacy act requirements
02 Security audit results, security violations
03 Virus alerts
04 Privacy Act requirements

Figure IV.B-102. IT-06 IT Systems Security and Privacy



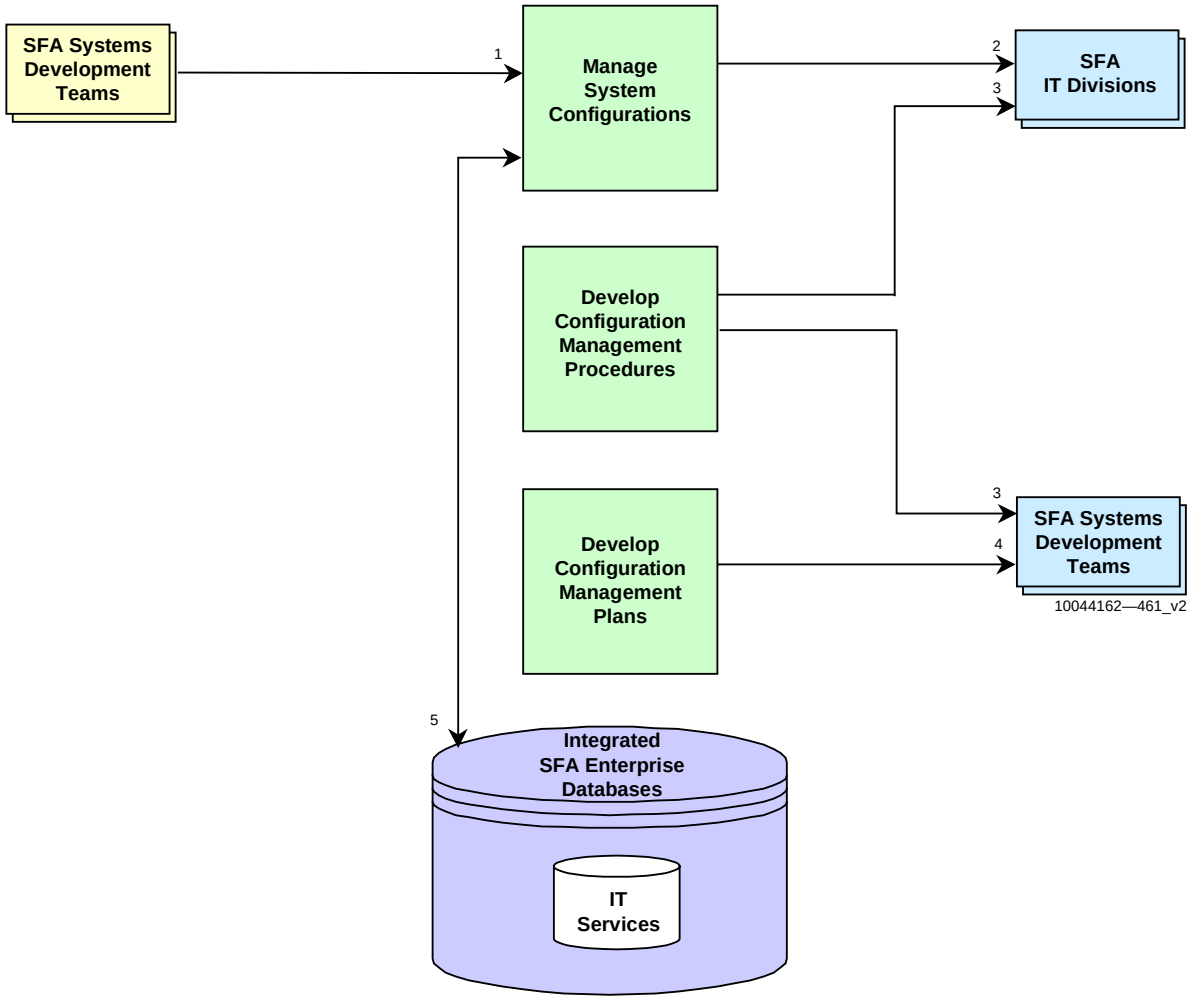
01 CIO guidance
02 Data standards
03 Common operating environment
04 Quality control plans and initiatives

Figure IV.B-103. IT-07 IT Standards and Methodology



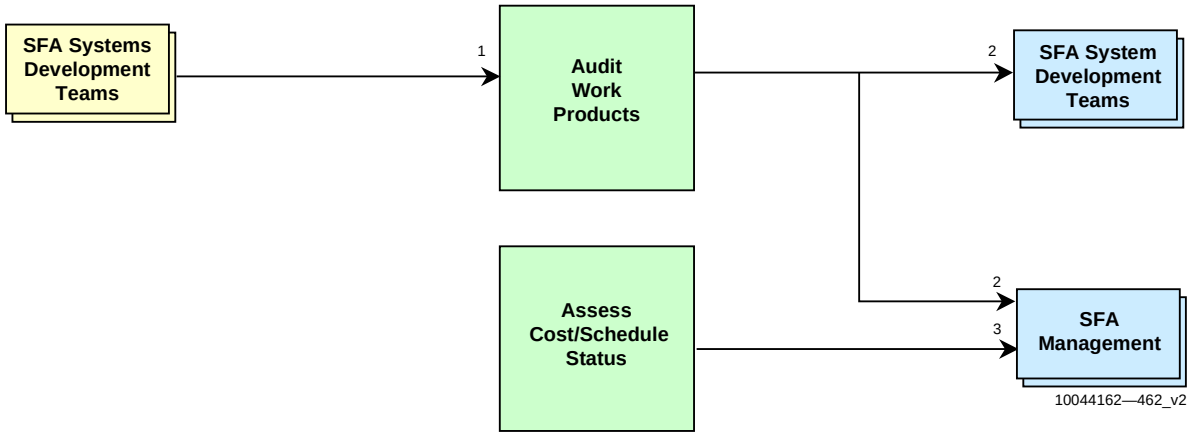
01 Interface requirements
02 Contract deliverables
03 Standards, procedures and performance metrics
04 Issues on contract performance, terms and conditions
05 Partner performance data

Figure IV.B-104. IT-08 IT Partner Interface Management



01 Notice of availability of configurable item to come under configuration control
02 Audit results, status accounting
03 SFA configuration management policies and procedures
04 System configuration management plans
05 Configurable item

Figure IV.B-105. IT-09 IT Configuration Management



01 Work products
02 Audits of work products, standards violations
03 Cost/schedule assessments

Figure IV.B-106. IT-10 IT Quality Assurance Subprocess Flow

Enterprise Services – Facilities Management Subprocess Flows

The following diagrams show the different interfaces and the interactions of the Facilities Management subprocess.

FM-01 Equipment Investment, Leasing and Disposal

The subprocess flow illustrated in Figure IV.B-107 depicts business interactions that govern the Equipment Investment, Leasing and Disposal subprocess. This subprocess evaluates equipment needs, negotiates purchases of equipment, and manages equipment records.

FM-02 Space Planning and Management (Layout/Buildout Architecture and Engineering Design)

The subprocess flow illustrated in Figure IV.B-108 depicts business interactions that govern the Space Planning and Management subprocess. This subprocess manages space allocation changes, plans for space allocation, and designs space allocation.

FM-03 Safety and Security

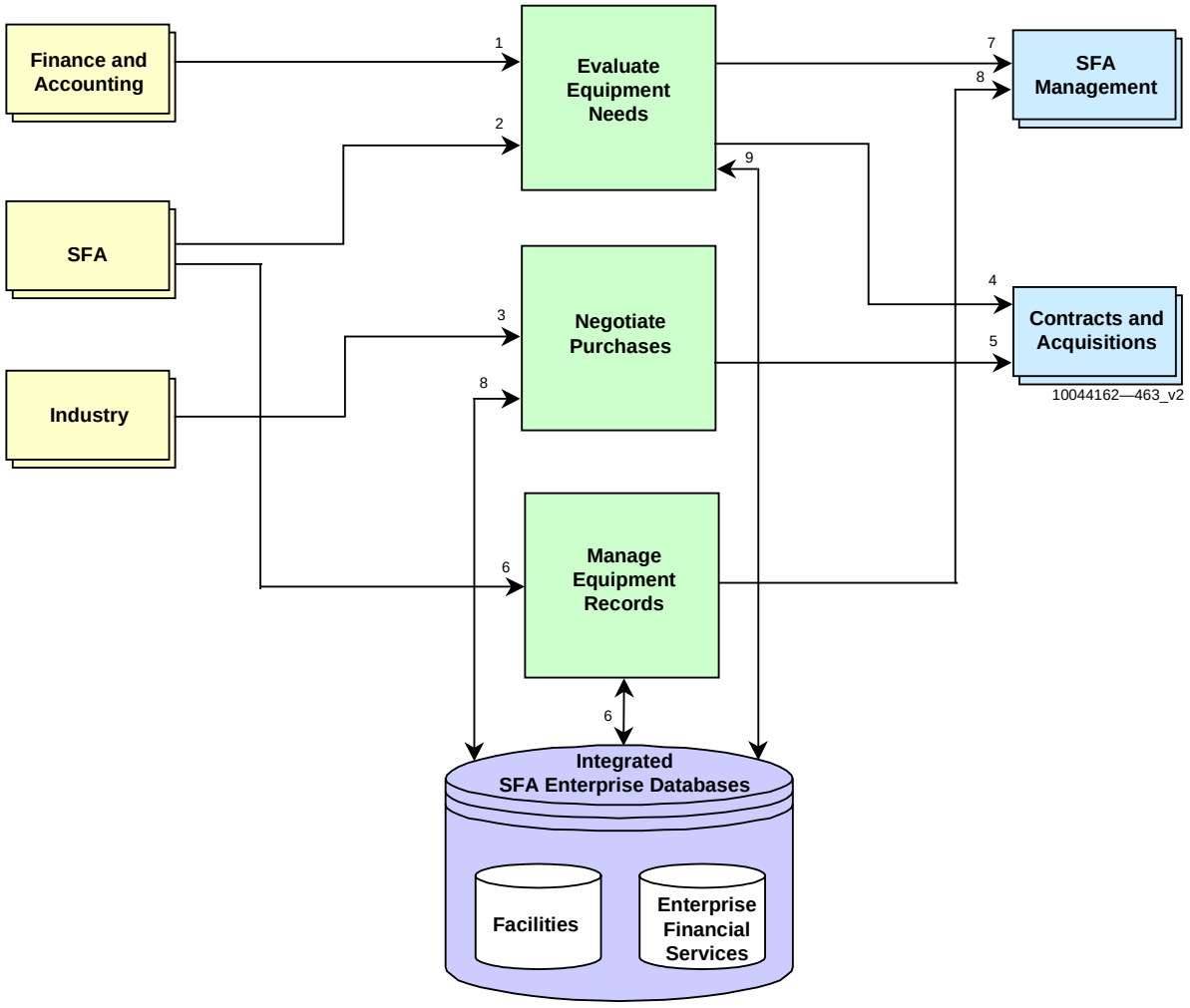
The subprocess flow illustrated in Figure IV.B-109 depicts business interactions that govern the Safety and Security subprocess. This subprocess includes the processing/management of security/access cards and clearances, inspection of space layouts to ensure it adheres to code, development of evacuation plans in case of emergency, training on safety procedures, and management of on-site medical facilities.

FM-04 Telecommunications

The subprocess flow illustrated in Figure IV.B-110 depicts business interactions that govern the Telecommunications subprocess. This subprocess manages SFA telecommunications requirements, including establishment of protocols, usage monitoring, upgrading/installation of telecommunications equipment.

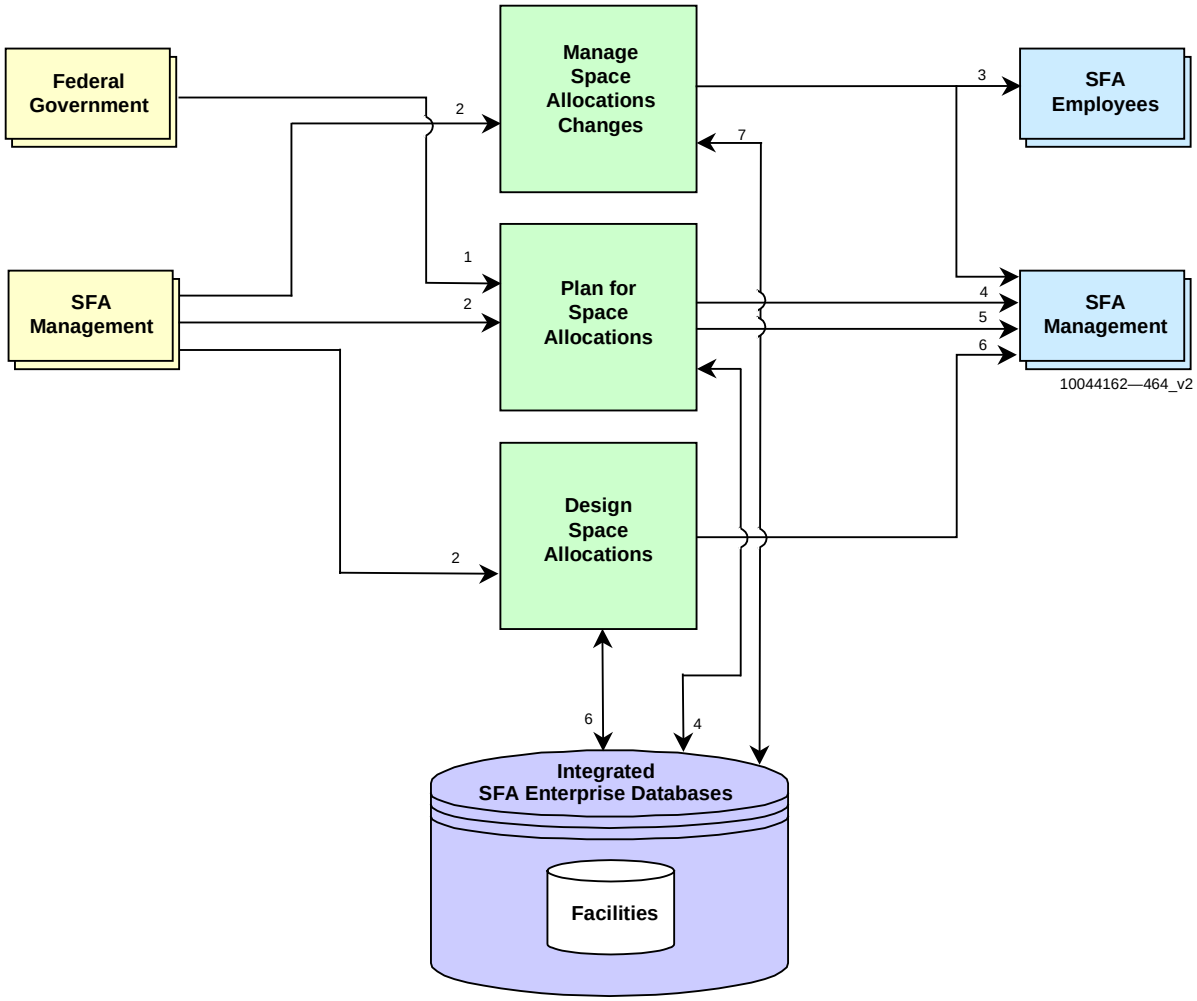
FM-05 Asset and Inventory Management

The subprocess flow illustrated in Figure IV.B-111 depicts business interactions that govern the Asset and Inventory Management subprocess. This subprocess manages the inventory of equipment and property. It includes physical inventories and reordering to replenish stock.



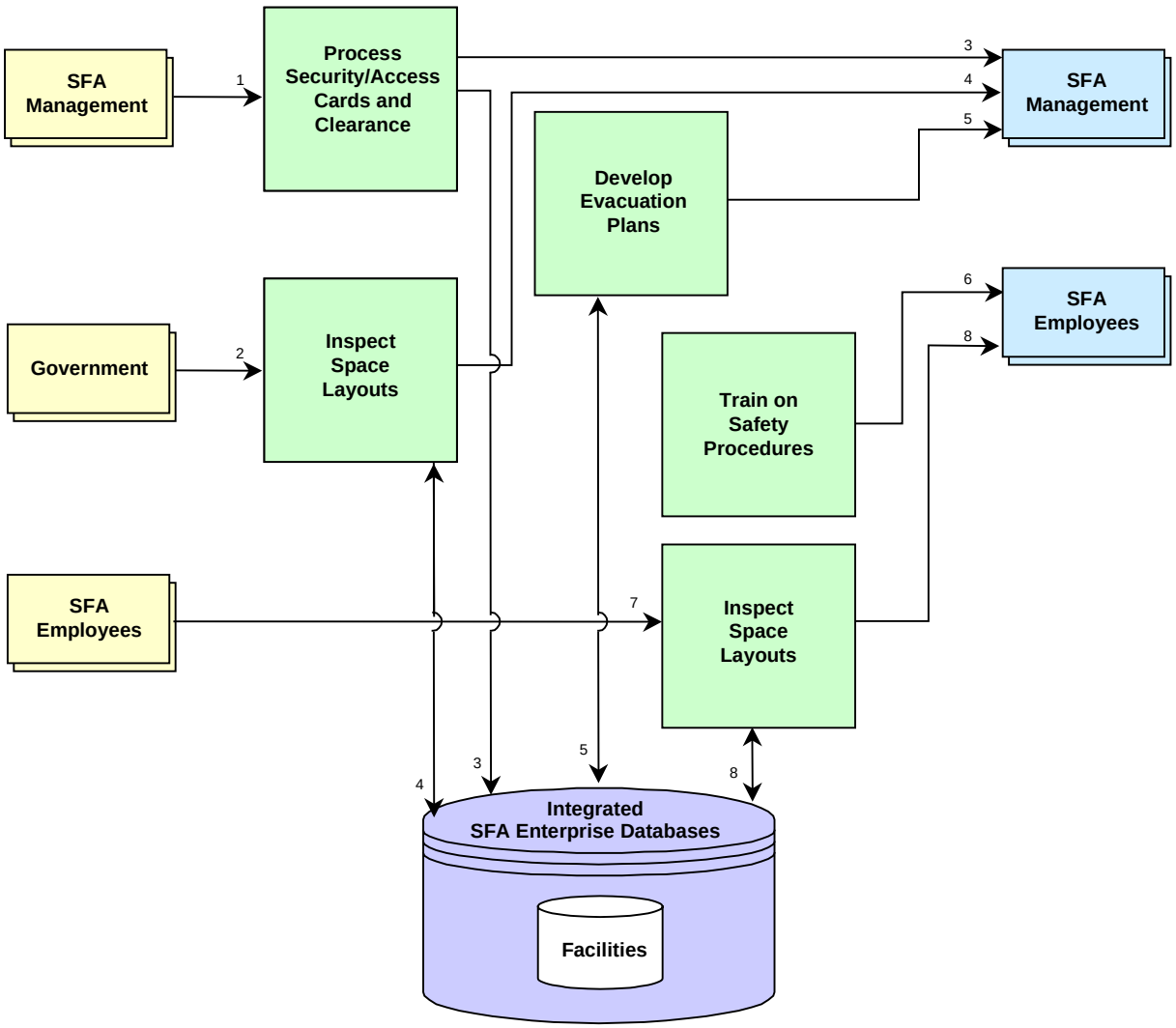
01 Lease versus buy analysis
02 Equipment requests
03 Offers
04 Purchase requisitions
05 Negotiation results
06 Procurement records such as equipment warranties
07 Recommendation to dispose of equipment
08 Purchase records
09 Equipment requirements

Figure IV.B-107. FM-01 Equipment Investment, Leasing, and Disposal



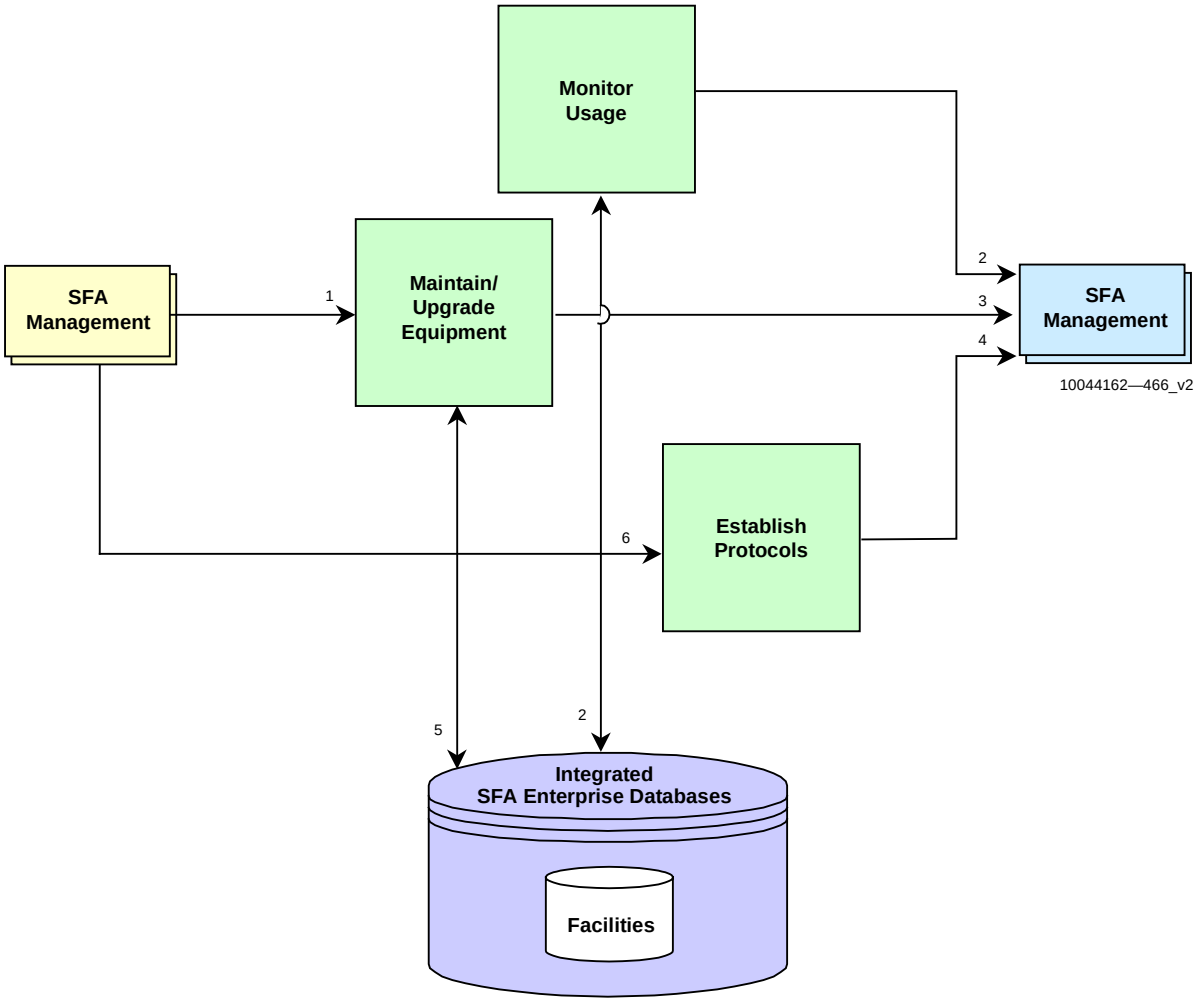
01 Government regulations, Government code
02 Space requirements
03 Notifications of space change
04 Forecasts
05 Recommendations to acquire space
06 Designs/blueprints
07 Space allocation change records

Figure IV.B-108. FM-02 Space Planning and Management



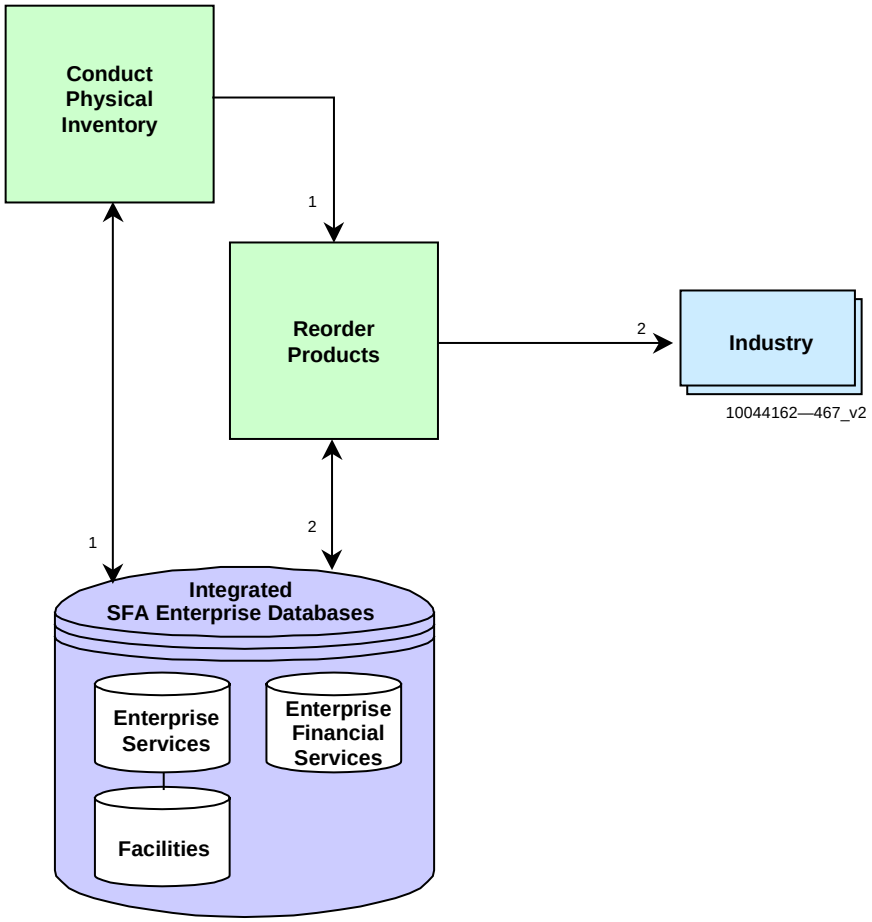
01 Request for security/access cards or clearance
02 Codes
03 Security/access card or clearance
04 Space layout inspection report
05 Evacuation plans
06 Safety training
07 Request for medical services
08 Medical services

Figure IV.B-109. FM-03 Safety and Security



01 Requests for telecommunications hardware/software changes, requests for new installations
02 Usage/cost by site
03 Upgrade/installation plan
04 Telecommunications protocols and procedures
05 Installed equipment
06 Initiating establishment of protocols

Figure IV.B-110. FM-04 Telecommunications



01 Product Inventory
02 Product orders

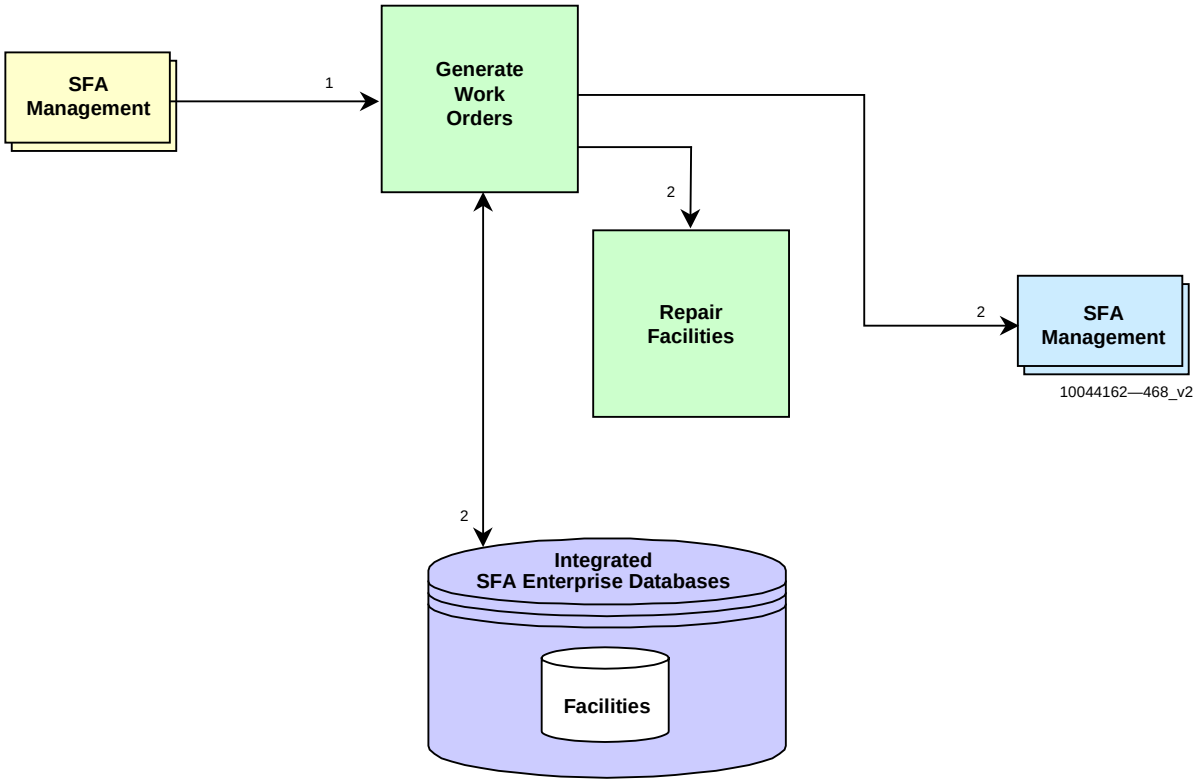
Figure IV.B-111. FM-05 Asset and Inventory Management

FM-06 Ongoing Facilities Management

The subprocess flow illustrated in Figure IV.B-112 depicts business interactions that govern the Ongoing Facilities Management subprocess. This subprocess oversees the maintenance of SFA facilities.

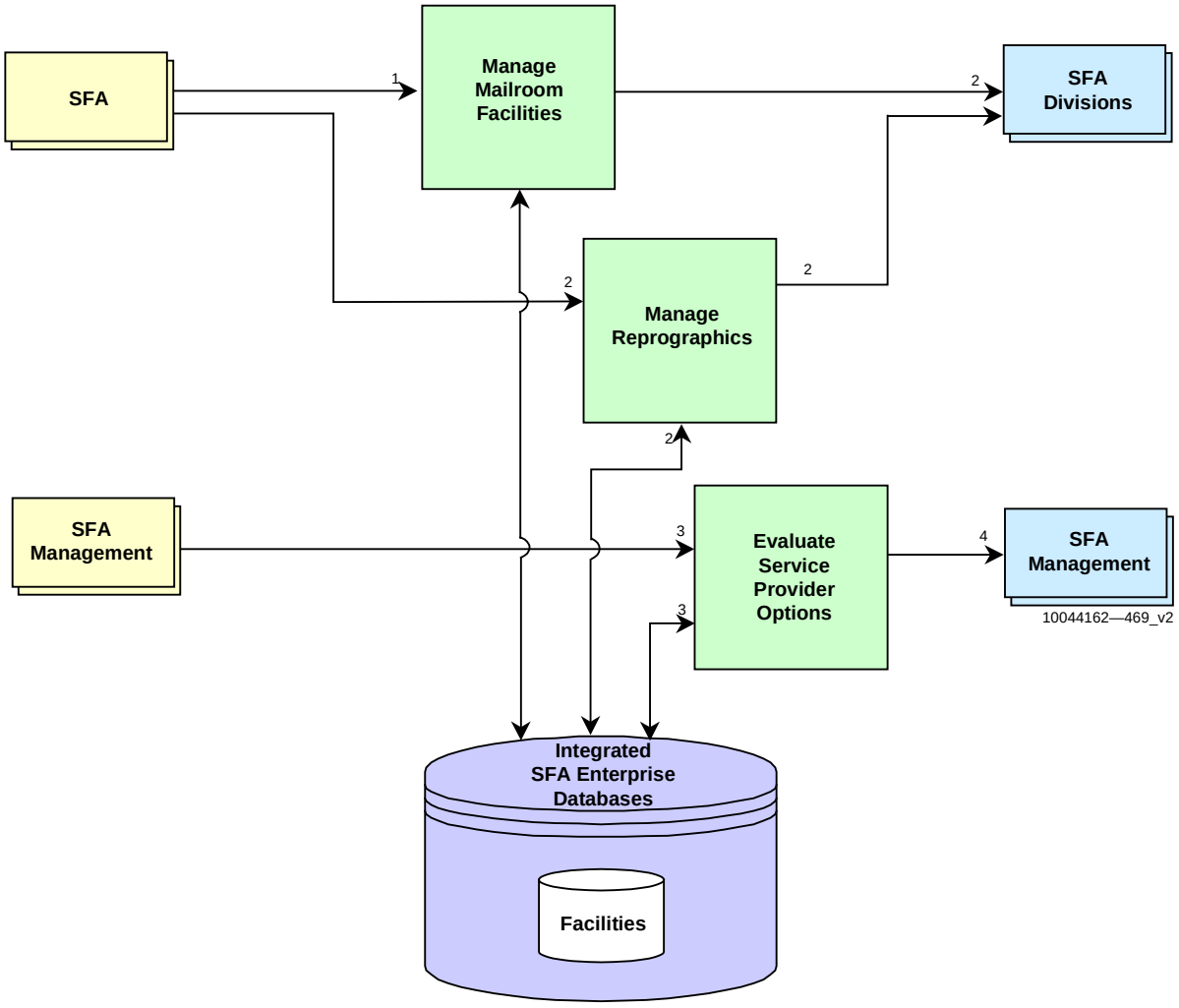
FM-07 Supervision of Business Services (Such as Reprographics, Mail Room, etc.

The subprocess flow illustrated in Figure IV.B-113 depicts business interactions that govern the Supervision of Business Services subprocess. This subprocess administers and maintains mailroom and reproduction services.



01 Request for maintenance
02 Work order/schedule

Figure IV.B-112. FM-06 Ongoing Facilities Management



01 Requirements for service
02 Services
03 Cost/quality data
04 Service provider options

Figure IV.B-113. FM-07 Supervision of Business Services (Such as Reprographics, Mail Room, etc.)

Enterprise Services – Contracts and Acquisition Management Subprocess Flows

The following diagrams indicate the interfaces and interaction of Contracts and Acquisition Management subprocesses.

CAM-01 Need-Based Planning

The subprocess flow illustrated in Figure IV.B-114 depicts business interactions that govern the Need-Based Planning subprocess. This subprocess evaluates proposed investments, develops the statement of work (SOW) identifies performance measures, and issues requests for information.

CAM-02 FP Request for Proposal (RFP) Creation and Issue

The subprocess flow illustrated in Figure IV.B-115 depicts business interactions that govern the RFP Creation and Issue subprocess. This subprocess defines the acquisition strategy, and creates/manages requests for proposals (RFP).

CAM-03 Source Selection and Evaluation

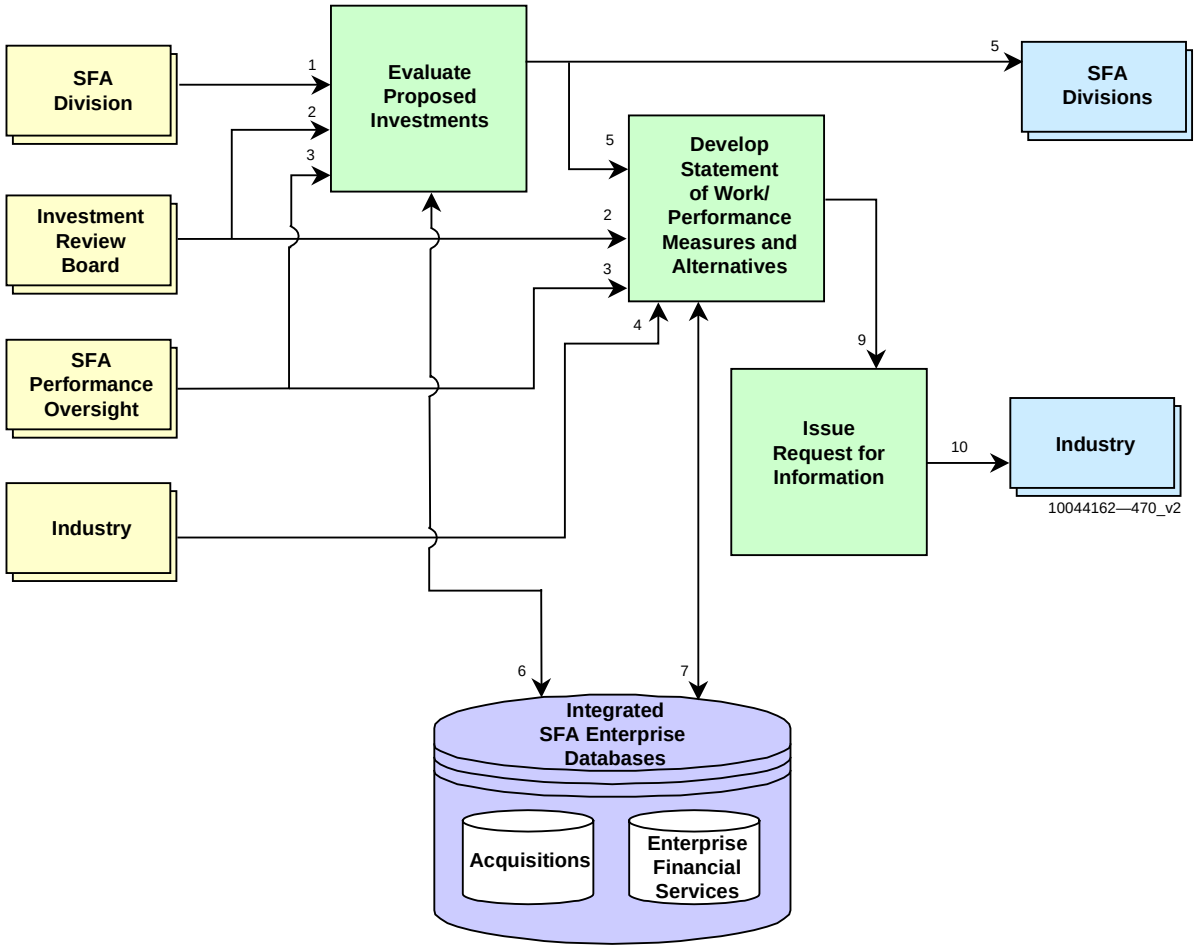
The subprocess flow illustrated in Figure IV.B-116 depicts business interactions that govern the Source Selection and Evaluation subprocess. This subprocess evaluates proposals from industry, notifies bidders of their status, and selects a winner.

CAM-04 Contract Management

The subprocess flow illustrated in Figure IV.B-117 depicts business interactions that govern the Contract Management subprocess. This subprocess manages the contract, monitors contract deliverables, and processes invoices.

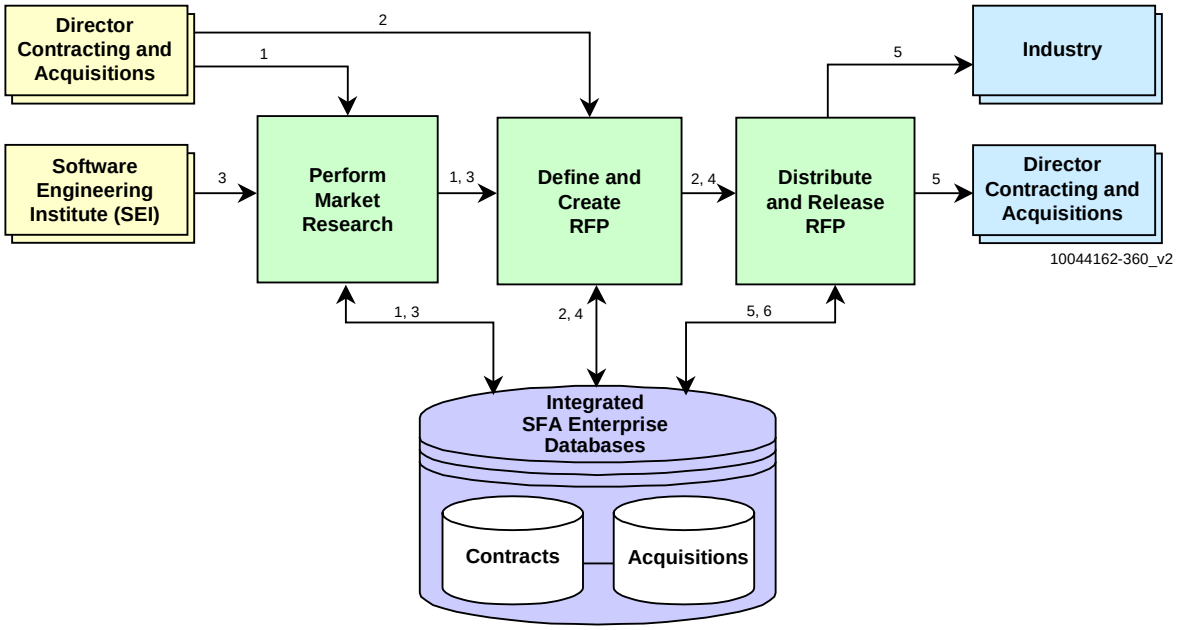
CAM-05 Policy Analysis and Innovation

The subprocess flow illustrated in Figure IV.B-118 depicts business interactions that govern the Policy Analysis and Innovation subprocess. This subprocess evaluates contract and acquisition policies and makes recommendations for changes as appropriate based on input from industry and other government agencies.



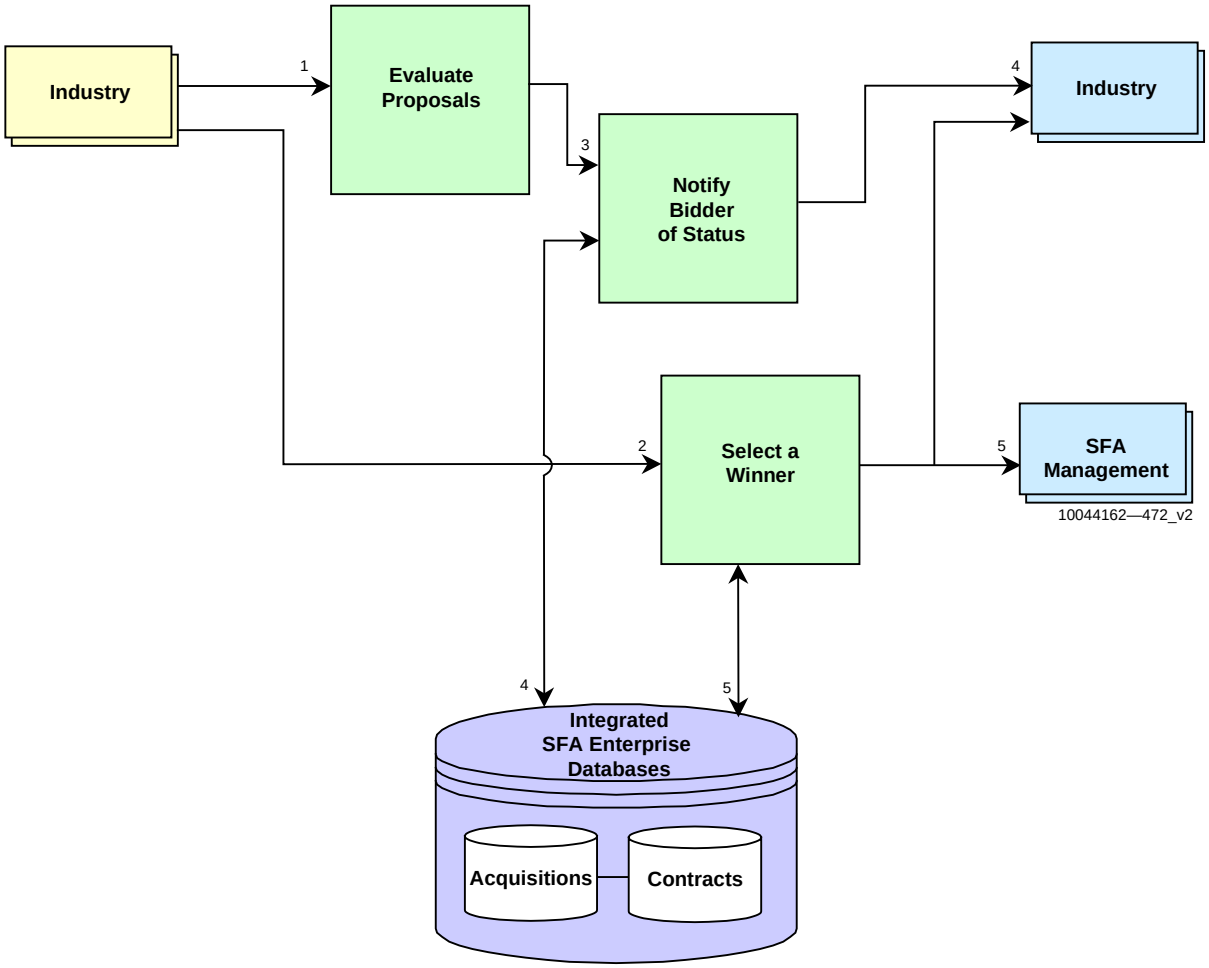
01 Investment request
02 Guidelines
03 PBO Objectives
04 Reponses to request for information (RFI)
05 Initial investment decision
06 Investment budget
07 Acquisition- related performance measures
08 Request for Information
09 Draft statement of work
10 Request for information (RFI)

Figure IV.B-114. CAM-01 Need-Based Planning



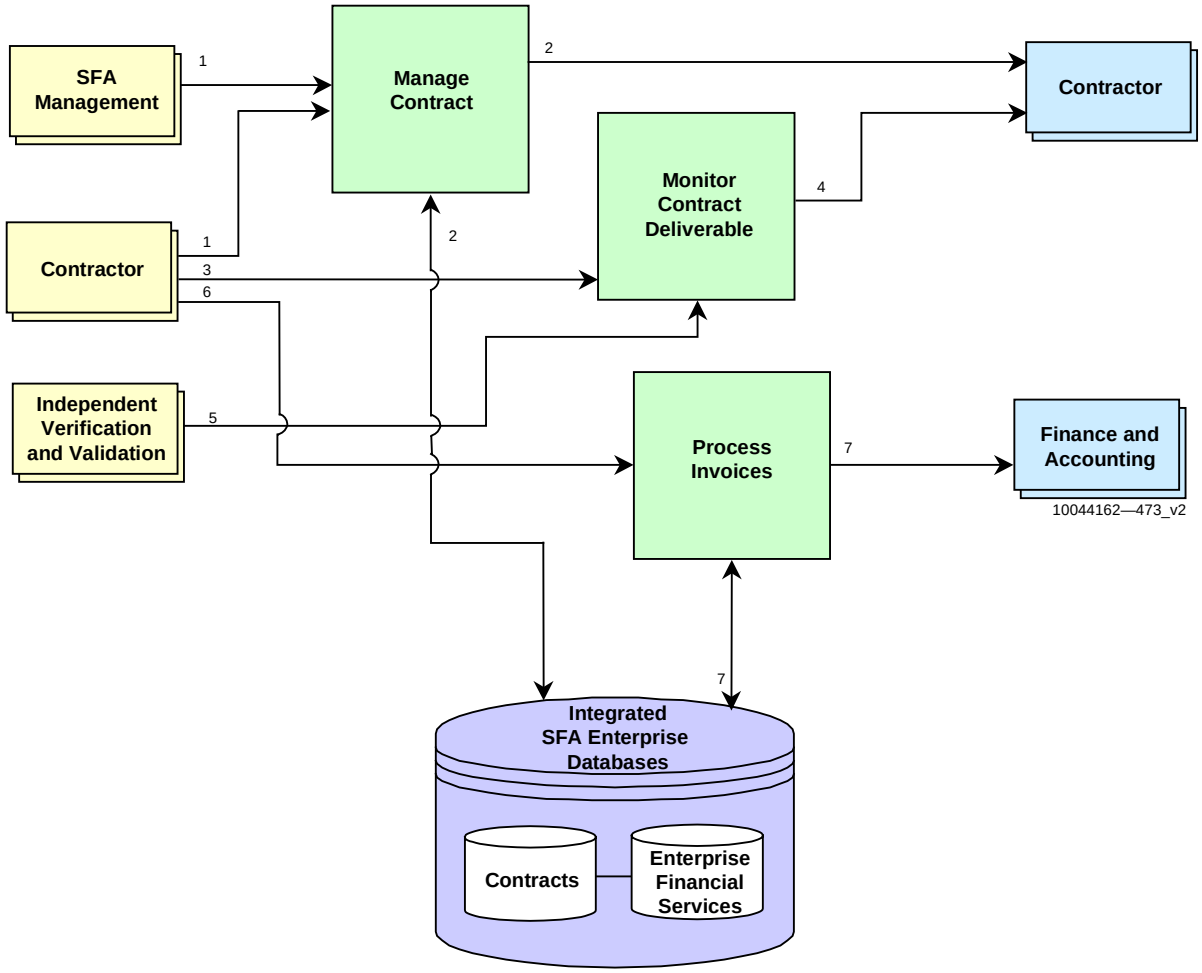
01 Performs market research
02 Defines the acquisition strategy
03 Drafts and finalizes the RFP utilizing Capability Maturity Model requirements
04 Distributes the RFP for internal review
05 Release RFP to industry
06 Tracks and incorporates comments/retracts or extends response date and produces a revised RFP

Figure IV.B-115. CAM-02 Request for Proposal (RFP) Creation and Issue



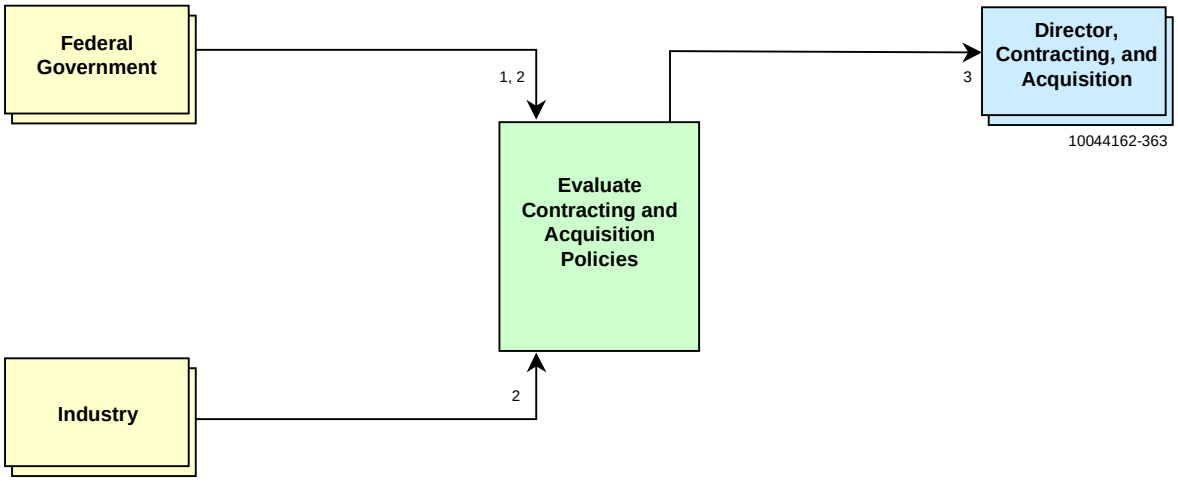
01 Proposal
02 Acceptable/unacceptable bids
03 Response to request for additional information
04 Rejections, classification reports
05 Contract award

Figure IV.B-116. CAM-03 Source Selection and Evaluation Subprocess Flow



01 Request for contract modification
02 Contract modifications
03 Deliverables, status reviews
04 Performance feedback, technical guidance
05 IV & V feedback
06 Invoices
07 Approved invoices

Figure IV.B-117. CAM-04 Contract Management



01 Federal regulations and guidelines
02 Public and private best practices
03 Recommendations for policy changes

Figure IV.B-118. CAM-05 Policy Analysis and Innovation

B.8 Subject Areas Mapped to Current Systems

The Modernization Blueprint (MBP) has identified subject areas that have been initially mapped to the current systems environment. The analysis of the current systems environment

- Estimates how well the current systems are supporting the functions of SFA.
- Identifies systems that are compatible with the future applications environment.
- Estimates the adequacy of current databases in supporting SFA functions.
- Identifies the subject areas and functions based on current systems coverage, which must be addressed when processing the actions in the implementation plan.

The following table lists MBP identified subject areas that are mapped with current systems databases:

Serial No.	MBP Identified Business Areas	MBP Identified Systems	MBP Identified Subject Areas	Current Systems Databases
1	Student Services	Aid Awareness	Aid Awareness Schools Participants Aid Organizations	NSLDS
		Aid Application	Aid Applications Schools Participants Aid Organizations	NSLDS CPS
		Loan Repayment	Loan Repayments Schools Aid Organizations Participants Debt Collection System	DLSS DLCS DLSS NSLDS FFEL/DCS
2	School Services	Aid School	Schools Aid Organizations Aid Programs Enterprise Financial Services	PEPS NSLDS PMOS
		Aid Origination and Disbursement	Aid Origination and Disbursements Schools Aid Organizations Participants	DLSS/CDS CBS FFEL DLCS DLOS DLSS NSLDS RFMS

Serial No.	MBP Identified Business Areas	MBP Identified Systems	MBP Identified Subject Areas	Current Systems Databases
3	Financial Partner Services	Aid Financial Partner	Financial Partner Services Schools Aid Organizations Aid Programs Enterprise Financial Services	PEPS NSLDS
4	Performance Management	Financial Management System	Enterprise Financial Services	CBS DLSS/CDS FFEL DLOS DLSS NSLDS RFMS
		Employee Satisfaction	Enterprise Performance Data Employee Satisfaction Data	
		Customer Satisfaction	Enterprise Performance Data Enterprise Satisfaction Data	
5	Enterprise Services	Human Resources Management	Enterprise Services Human Resources	
		IT Management	Enterprise Services IT Services	
		Facilities Management	Enterprise Services Facilities	
		Contracts and Acquisition Management	Enterprise Services Contracts Acquisitions	

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C. SFA Business Systems Architecture

The SFA Business System Architecture identifies probable business systems and databases required to support the SFA Business Process Architecture. It provides a high-level initial prediction of the application systems to be developed, although a more detailed understanding of information requirements is needed to determine the actual contents of each business system. The SFA Business system Architecture is comprised of Level I SFA Enterprise Business System Architecture and Level II SFA Business Systems/Subsystems Architecture.

C.1 Level I SFA Enterprise Systems Architecture

The main objective of Level I SFA Enterprise Business System Architecture is to identify a high-level prediction of enterprise-wide integrated business systems, databases and external interfaces. It is comprised of interfaces, business systems/subsystems, and integrated SFA enterprise databases. The enterprise business system architecture describes the high level interfaces, which are established between external agents, systems, subsystems, and databases. As shown in Figure IV.C-1, the enterprise business architecture is designed based on the logical 3-tier architecture, which is described further in Chapter I, Executive Summary.

This Enterprise Business System architecture provides efficiency and reduction of duplicated data and systems across the SFA enterprise through the utilization of the Enterprise Application Integration (EAI) architecture layer. EAI provides the set of technology services that enables the linkage of disparate systems processes and data to support end-to-end business processes. Instead of point-to-point custom development, interfaces will be implemented through this standardized Integration Architecture Services (EAI) layer, eliminating the need to develop hard-coded customized interfaces to numerous legacy applications and databases.

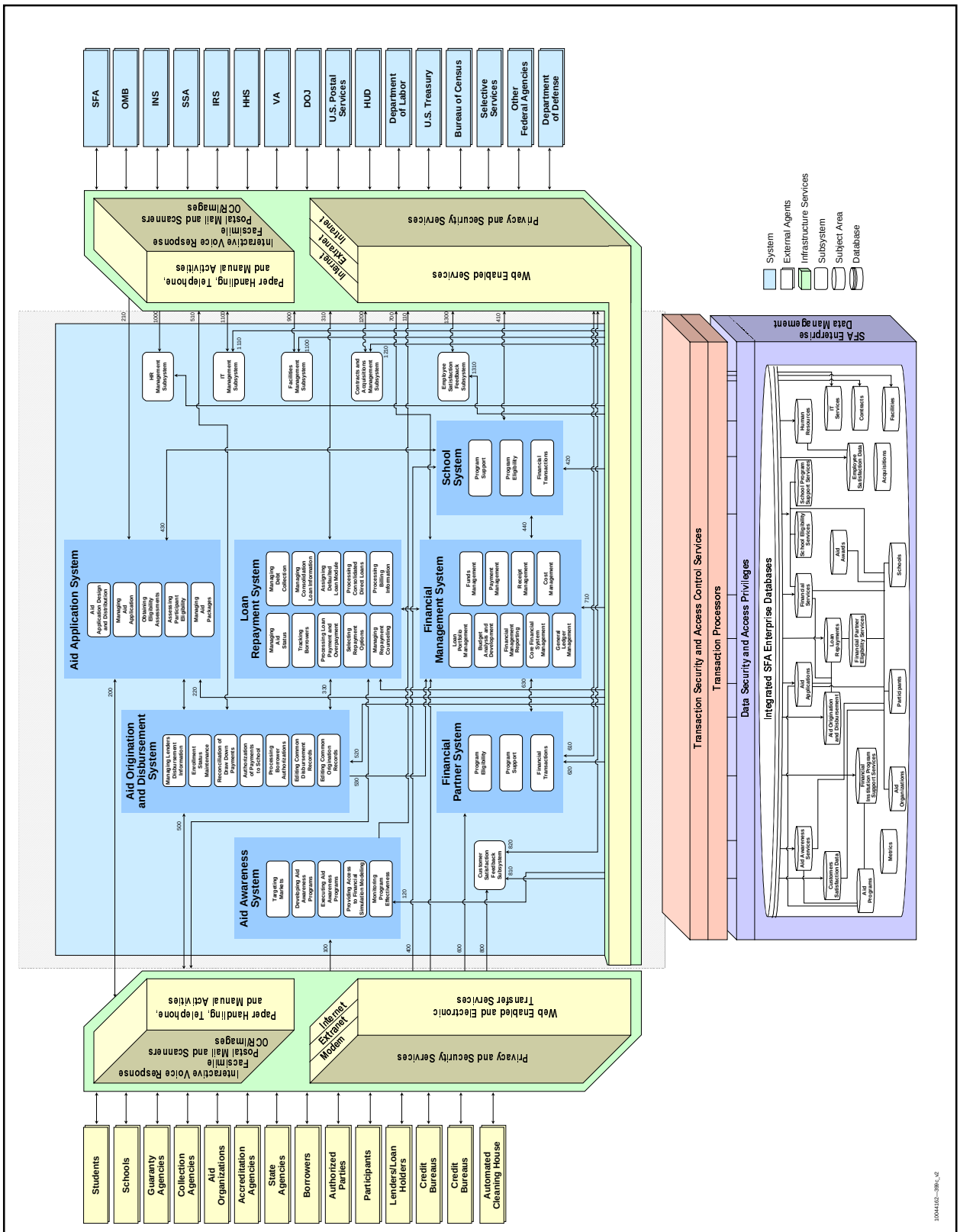

Figure IV.C-1. SFA Enterprise Business Systems Architecture (Level I)

Interface Number	Interface Description	Subject Area Name	External Agents
100	The Aid Awareness system interfaces with external agents of business channels and third parties for the following: • Collecting data on aid recipients, aid products, services, or distributions • Identifying potential aid organizations • Finalizing aid awareness program plans with partners • Performance measurement for awareness programs • Distributing awareness products such as, softcopy, electronic media, or publications • Receiving inquiries directly from students, parents and others • Receiving orders for products and publication inquiries from secondary schools • Offering SFA Web site links for financial planning Web sites • Coordinating and exchanging information with schools, guaranty agencies, state licensing and accreditation agencies to improve service delivery to students.	Aid Awareness Services Schools Participants Aid Organizations Aid Programs	Students Parents Aid Organizations Schools
110	The Aid Awareness system interfaces with SFA and federal agencies for the following: • Collecting census data, commissioned surveys, NPSSA, existing SFA databases, grant reports, etc. • Receiving legislation, policies, regulations, non-SFA awareness program information from federal agencies that support SFA aid awareness programs • Developing and updating awareness programs with targets in mind • Monitoring program effectiveness and making changes where needed	Aid Awareness Services Schools Participants Aid Organizations Aid Programs	SFA Bureau of Census Other Federal Agencies

Interface Number	Interface Description	Subject Area Name	External Agents
120	The Aid Awareness system creates, extracts and updates aid awareness data with the integrated SFA enterprise databases for the following: • Census data, target market surveys, Receiving legislation, policies, regulations, non-SFA awareness program information • Awareness programs • Collecting data on aid recipients, aid products, services, or distributions • Potential aid organizations • Performance measurement data for awareness programs • Inquiry data from students, parents and others • Orders details for products and publications	Aid Awareness Services Schools Aid Organizations Participants	None
200	The Aid Application system interfaces with external agents of business channels and third parties for the following: • Interacting with the educational community to keep refining and modifying application forms. • Making available application forms, lists of lenders and schools, and promissory notes to the business channels • Receiving completed applications through the Web or MDE • Distributing security PIN numbers to students • Receiving a digital signature/authentication from borrowers and renewal application forms • Notifying borrowers/appropriate parties when changes occur in participants' records • Assessing participant eligibility with lenders, guaranty agencies, state agencies, and third parties • Providing ability to schools to create and manage aid packages	Aid Applications Aid Organizations Schools Participants	Students Schools Aid Organizations Lenders Guaranty Agencies Borrowers
210	The Aid Application system interfaces with SFA and federal agencies for the following: • Verifying applicant's immigration status with INS, name SSN citizenship status and mortality with SSA, income with IRS, participant's untaxable income information with HHS, veteran's benefits income information with VA, participant's drug conviction sentence with DOJ, and draft registration with selective services. • Providing the ability to OMB to verify application format for final clearance.	Aid Applications Aid Organizations Participants	INS SSA IRS HHS VA DOJ Selective Services OMB

Interface Number	Interface Description	Subject Area Name	External Agents
220	The Aid Application system creates, extracts and updates aid application data with the integrated SFA enterprise databases for the following: • Application forms, promissory notes, student PINs, eligibility determination details, creating aid packages, application renewals, application lifecycle details, and digital signature/authentication. • Student aid data and payment history for federal loans and Title IV aid.	Aid Applications Participants Schools Aid Organizations	None
300	The Loan Repayment system interfaces with external agents of business channels and third parties for the following: • Repayment terms, conditions, and counsel options • Tracking repayment counseling • Selection of repayment options • Automatic payroll deduction and/or other debits • Receiving consolidation requests on loans • Electronic debt advice • Income contingent repayment terms • Recalculating loan/repayment schedules • Verifying borrowers' incomes • Billing date change requests • Disbursement of billing information and financial statements • Receiving payments • Preparing and distributing all tax-related forms and documents • Receipt of payments • Sending payments due to overpayments • Receiving loan update information and updating the loan calculations • Transferring Direct Loans among Direct Loan servicers • Changes in enrollment status • Deferment and forbearance decisions and options • Service agreements policy and procedures • Defaulted loan details • Loan Payment History • Verifying income, employment status, and active duty military assignments • Providing skip trace capabilities	Loan Repayments Aid Awards Schools Students Aid Organizations	Collection Agencies Authorized Parties Credit Bureaus Guaranty Agencies Employers Lenders/Loan Holders Schools Borrowers

Interface Number	Interface Description	Subject Area Name	External Agents
300 (Cont'd)	• Providing information on borrowers to Credit Bureaus • Receiving demographic details • Defaulted loan information and grant details • Receiving and acting on recommendations from collection agencies on defaulted loan status • Wage garnishment procedures • Maintaining the borrower's repayment history • Performing litigation action on defaulted borrowers • Transferring loans held by ED to collection agencies • Offsetting Federal and state refunds due to defaulted loan holders • Providing a listing of loan holders that are authorized to be consolidators to the borrower • Receiving loan consolidation choices • Notifying borrowers and loan holders of the acceptance or rejection of consolidation requests • Verifying loan existence and loan balance information • Generation of payments requests to consolidate loans • Sending disclosures and promissory notes to borrowers		
310	The Loan Repayment system interfaces with SFA and federal agencies for the following: • Skip-tracing • Providing defaulted loan alerts to the Department of Housing and Urban Development • Verification of income, unemployment status, active military duty status, Federal employment confirmation, demographic details • Identifying defaulted borrowers • Offset of IRS refunds due to defaulted borrowers • Tracking repayment options selected • Monitoring program effectiveness and making changes where needed	Loan Repayments Aid Awards Schools Students Aid Organizations	IRS SFA Department of Labor Department of Defense State Agencies U.S. Postal Services HUD Department of Justice U.S. Treasury
320	The Loan Repayment system interfaces with the Financial Management system for the following: • Processing direct loan payments • Providing information regarding receivables • Tracking receivables	Loan Repayments Enterprise Financial Services	Borrowers

Interface Number	Interface Description	Subject Area Name	External Agents
330	The Loan Repayment system interfaces with the Aid Origination and Disbursement system for the following: • All information about an aid award used by a student is used to create the balances and due dates for loans • Loan counseling and options available are tailored around the type of award given • Demographic information on a student/borrower can be verified for accuracy • Aid Programs are verified • Aid Organizations are verified	Aid Awards Participants Aid Programs Aid Organizations Aid Origination and Disbursements	Lenders
340	The Loan Repayment system creates, extracts and updates loan data with the integrated SFA enterprise databases for the following: • Capturing repayment options • Producing billing statements • Processing deferments, forbearances, discharges, cancellations and loan transfers • Maintaining delinquent accounts and reporting said accounts • Managing all transactions related to identifying defaulted loans, processing payments, • Consolidation of loans	Schools Participants Aid Organizations Loan Repayments Aid Awards Eligibility Services	Lenders Guaranty Agency Collection Agency Borrowers Federal Agency
400	The School system interfaces with external agents of business channels and third parties for the following: • Receiving school applications for eligibility or re-certification, accreditation information, change of ownership notices, signed PPAs, and audit trails • Notifying schools of their (non)eligibility to participate in Title IV programs, and schools of start/stop payment orders and discontinuance of eligibility • Requesting and receiving signed letters of credits • Receiving and sending PIN or OPE IDs to external authentication sources • Receiving A-133 and OIG financial statements, non-default rate appeals, school draft cohort default rate challenges, FISAP data from the domestic schools, and LST notice data and appeals • Sending LST notice data • Notice of closed schools to state agencies, schools, and students	School Eligibility Services School Program Support Services Schools Participants Aid Organizations Enterprise Financial Services	Schools Guaranty Agencies State Agencies Accreditation Boards Students

Interface Number	Interface Description	Subject Area Name	External Agents
400 (Cont'd)	• Drawdown disbursements to schools, Federal Perkins Loan, FSEOG, and FWS school authorization amounts • Allocation of special authorization amounts for Campus-Based programs • Reallocating school Campus-Based Program (Perkins Loan, FSEOG, and FWS) authorization amounts based upon unexpended award balances as reported by schools, notifying schools of their Campus-Based Program authorization amounts and Pell Grant authorization amounts • Requesting and receiving signed letters of credit from schools • Adjusting school awards and authorizations if necessary, Perkins Loan portfolio balances, and FCC disbursed amounts, school Pell Grant ACH payment requests, an alternative method to advance payment for schools, and low income school information		
410	The School Service system interfaces with SFA for the following: • Providing change-of-ownership notices, and to receive requests for school letters of credit, school start/stop orders, reviews of schools, school audit, Financial information, and hold payment orders • Receiving GAPS and IPEDS data, and school cohort default rates • Distributing program review and audit data, appeals of audit, review determination, and student default information • Sending FISAP data	School Eligibility Services School Program Support Services Schools Participants Aid Organizations Enterprise Financial Services	SFA
420	The School Service system creates, extracts and updates eligibility data with integrated SFA enterprise databases for the following: • Analyzing and evaluating domestic and foreign schools applications for the school program eligibility • Statutory eligibility, administrative capability and financial capability are key determinants of school eligibility • Calculating and authorizing administrative cost allowance payments to schools as reimbursement for costs incurred by a school to administer the Pell Grant programs	School Eligibility Services Schools Participants Aid Organizations	None

Interface Number	Interface Description	Subject Area Name	External Agents
420 (Cont'd)	• Monitoring and adjusting the authorization levels for each school to ensure schools have sufficient funds to issue Pell Grants • Reimbursing schools for the amount of Perkins loans they report as being canceled when a student is exempt from repayment due to employment status upon graduation • Generating school Campus-Based Program ACH payment requests		
430	The School System interfaces with the Aid Applications system for the following: • Providing student aid history • Providing student eligibility	Schools Participants	Borrowers Lenders
440	The School System interfaces with the Financial Management system for the following: • Processing payments to schools • Providing information regarding payables	Loan Repayments Participants Enterprise Financial Services	Borrowers
500	The Aid Origination and Disbursement system interfaces with external agents of business channels and third parties for the following: • Disbursement records, origination records, adjustments, and cancellations • Accepting or rejecting award origination records based on Title IV aid program criteria • Credit check result for a Direct Plus loan • Monitoring the receipt of disbursement records • Long-term debt management details • Disbursement of funds to schools • Interest rate and formal loan disclosures • common integrated origination, payment, and reconciliation process/formats for all Title IV student financial assistance programs • Just-In-Time Payment Method • Drawdown method of disbursements to schools • Student enrollment data by schools • Student disbursement rosters to schools	Aid Origination and Disbursements Schools Aid Organizations Participants	Schools Students Guaranty Agencies Lenders Automated Clearing House
510	The Aid Origination and Disbursement system interfaces with SFA to accept or reject award origination records based on Title IV aid program criteria.	Aid Origination and Disbursements Schools Aid Organizations Participants	SFA

Interface Number	Interface Description	Subject Area Name	External Agents
520	The Aid Origination and Disbursement system creates, extracts and updates origination and disbursement data with the integrated SFA Enterprise Databases for the following: • Editing the origination and disbursement records • Borrower authorization processing • Reconciling drawdown payments • Student enrollment data • Audit Trail details	Aid Origination and Disbursements Schools Aid Organizations Participants	None
530	The Aid Origination and Disbursement system interfaces with the Financial Management system for the following: • Processing direct loan disbursements • Providing information regarding payables • Tracking receivables	Loan Repayments Enterprise Financial Services	Borrowers
600	The Financial Institution system interfaces with external agents of business channels and third parties for the following: • An application form to participate in Title IV program • Title IV program approvals • Lender Participation Questionnaire • FFEL program based on lender performance determined through internal and external program reviews, audits, and other forms of performance levels • Deactivating and discontinuing the participation of a financial institution in the Title IV program • Educating financial institutions • Loan holder interest rates and special allowance invoices • Direct Loan consolidations • Offsetting payments to lenders through origination fees, lender fees, treasury offsets or other receivables • Reinsurance claim agencies data • Leveraging Educational Assistance Program Partnership (LEAPP) funds	Financial Institution Eligibility Services Financial Institution Program Support Services Aid Organizations Enterprise Financial Services	Lenders Guaranty Agencies State Agencies

Interface Number	Interface Description	Subject Area Name	External Agents
610	The Financial Institution Service system interfaces with SFA for the following: • Offsetting interest and special allowance payments for receivable due to ED or Treasury for those receivable that could not be collected by other means • Providing loan holder interest and special allowance authorizations to ED/CFO for payment • Confirming maintenance fees, generating payment requests, and sending them to ED/CFO for payment • Confirming processing fees, generating payment requests, and sending them to ED/CFO for payment • Sending payment request for ED/CFO for payment	Financial Institution Eligibility Services Financial Institution Program Support Services Aid Organizations Enterprise Financial Services	SFA
620	The Financial Institution System creates, extracts and updates origination and disbursement data with the integrated SFA Enterprise Databases for the following: • Determining Financial Institution eligibility • Processing LEAPP • Institution performance data • Program reviews and audits • Processing interest invoice claims and special allowance invoices	Financial Institution Eligibility Services Financial Institution Program Support Services Aid Organizations Financial Services	None
630	The Financial Institution System interfaces with the Financial Management system for the following: • Processing fees paid by Financial Institutions • Receiving loan portfolio information		None
700	The Financial Management system interfaces with SFA for the following: • Consolidating government-wide financial information • Integrating planning, budgeting, and accounting • Capturing data at the lowest level of detail-at the point of data entry throughout SFA in a manner that ensures that when data is rolled up to the level that is standardized, it is consistent at the standardized level • Comparing and combining similar programs across agencies and calculating overall program results	Enterprise Financial Services	SFA

Interface Number	Interface Description	Subject Area Name	External Agents
700 (Cont'd)	• General Ledger processing • Audit trail • Managing funds, payments and accounts receivables • Cost management • Financial reporting • Loan portfolios • Budgets and developments		
710	The Financial Management system creates, extracts and updates financial data with the integrated SFA Enterprise Databases for the following: • Policy maintenance • General Ledger • Fund appropriations, allotment, and balance for each aid program • Various payments distribution across SFA • Accounts receivables • Costs maintenance in many different levels • Financial reporting • Loan portfolios • Budget information	Enterprise Financial Services	None
720	The Financial Management system interfaces with the Financial Institution System for the following: • Processing payments • Tracking receivables	Enterprise Financial Services	None
530	The Financial Management system interfaces with the Aid Origination and Disbursement system for the following: • Processing disbursements • Tracking receivables	Loan Repayments Enterprise Financial Services	Borrowers
800	The Customer Satisfaction Feedback subsystem interfaces with the external agents of business channels and third parties for the following: • Receive survey data via phone, Web, etc. • Receiving best practices, benchmarking, and statistics data • Complaints/given number of applications • Thanking respondents and participants for their input and survey participation • Generating customer satisfaction reports for schools, students and financial institutions	Participants Students Customer Satisfaction Data Schools	Students Participants Schools Guaranty Agencies

Interface Number	Interface Description	Subject Area Name	External Agents
810	The Customer Satisfaction Feedback System creates, extracts, and updates information with the integrated SFA enterprise databases for the following: • Survey results • Compliant tracking • Customer satisfaction results	Customer Satisfaction Data Participants Schools	None
820	The Customer Satisfaction Feedback System interfaces with SFA for the following: • Publishing survey results • Providing policy and procedures	Customer Satisfaction Data	SFA
900	The Facilities Management subsystem interfaces with SFA and third parties for the following: • Performing lease versus buy analysis • Processing equipment requests • Managing space • Providing medical care • Communicating evacuation plans • Managing telecommunications • Managing asset inventories • Performing general facilities maintenance • Providing mailroom and reprographic services • Processing security/access cards	Facilities	SFA
910	The Facilities Management subsystem creates, extracts and updates facilities-related data for the following: • Capturing information on equipment needs and inventories • Tracking space usage at SFA facilities • Tracking employee access to facilities • Monitoring usage of telecommunications equipment • Managing maintenance workloads and schedules	Facilities	None
1000	The Human Resources Management subsystem interfaces with SFA and third parties for the following: • Hiring of personnel • Providing benefits to employees • Developing competitive benefits packages • Establishing employee development plans • Developing training programs • Handling/resolving workplace and labor disputes • Establishing human resource policies and procedures	Human Resources Enterprise Financial Services	SFA

Interface Number	Interface Description	Subject Area Name	External Agents
1010	The Human Resources Management subsystem creates, extracts and updates employee-related data for the following: • Capturing personnel-related information on new hires • Managing personnel-related data on existing staff • Managing employee benefits • Tracking employee development • Publishing information on internal and external training programs	Human Resources Enterprise Financial Services	None
1100	The IT Management subsystem interfaces with SFA and third parties for the following: • Evaluating industry trends and emerging technologies • Evaluating requests for IT investments • Evaluating performance on SLAs • Developing business applications • Monitoring system performance • Planning for future capacity requirements • Communicating system contingency plans, risk management and actual system failures • Alerting staff regarding viruses and other workstation-related issues • Enforcing the use of IT standards • Performing configuration management functions • Auditing work products and cost/schedule	IT Services Enterprise Financial Services	SFA
1110	The IT Management subsystem creates, extracts and updates IT-related data for the following: • Evaluating requests of IT investments • Capacity and production planning • Auditing project costs/schedules • Evaluating performance on SLAs	IT Services Enterprise Financial Services	None
1200	The Contracts and Acquisitions subsystem interfaces with SFA and third parties for the following: • Evaluating requests for products or services • Planning an acquisition strategy • Managing the proposal process • Managing vendor contracts • Monitoring vendor performance • Processing vendor invoices	Contracts Acquisitions Enterprise Financial Services	SFA

Interface Number	Interface Description	Subject Area Name	External Agents
1210	The Contracts and Acquisitions subsystem creates, extracts and updates data for the following: • Tracking requests for investments • Developing budgets • Managing vendor contracts • Processing vendor invoices	Contracts Acquisitions Enterprise Financial Services	None
1300	The Employee Satisfaction Feedback Subsystem interfaces with SFA for the following: • Identify employee needs • Survey results • Developing initiatives to increase employee success	Enterprise Satisfaction Data	SFA
1310	The Employee Satisfaction Feedback Subsystem creates, extracts, and updates information with the Integrated SFA Enterprise Databases for the following: • Survey results • Capture employee satisfactions	Employee Satisfaction Data	None

C.2 Level II SFA Business Systems Architecture

The logical three-tiered structure and the new technology give SFA an opportunity to equal the best in business in agility, efficiency, and service. This subsection presents system and subsystem architectures for Level II, which are presented for Aid Awareness, Aid Application, Loan Repayment, School, Aid Origination and Disbursement, Financial Partner, Customer Satisfaction, Employee Satisfaction, Financial Management, and Enterprise Services. Sections D begin to expand these architectures to include communications paths and computer systems. Section E addresses the related privacy/security architectures.

Aid Awareness System

The Aid Awareness System (Figure IV.C-2) captures information pertaining to the various segments of the markets, analyzes their characteristics, and identifies potential program participants of students and their families. The system provides information and guidance to assist in the post-secondary school planning and decision making process. The system keeps track of different types of SFA initiatives including the "College is Possible" campaign and may include future co-branding or sponsorship opportunities designed to reach the target market through popular media. The Aid Awareness System develops awareness programs, based on target need, such as Enhanced Outreach Services for under-served markets. The system provides all necessary supports to SFA to execute awareness through the implementation of its programs and initiatives. Throughout the process, the system monitors program effectiveness and recommends changes where needed.

System Capabilities

The Aid Awareness system provides the capabilities that include:

- Capturing information for each segment of the markets including students, and their families, analyzing them and identifying each segment characteristics that are suitable to a potential aid program.
- Providing information and guidance to assist in the post-secondary school planning and decision making process.
- Assisting ED in developing and updating awareness programs with targets in mind.
- Providing all necessary supports accessing other non-SFA resources, including informational materials (e.g., books, Web sites) and financial simulation and modeling (via the Web).

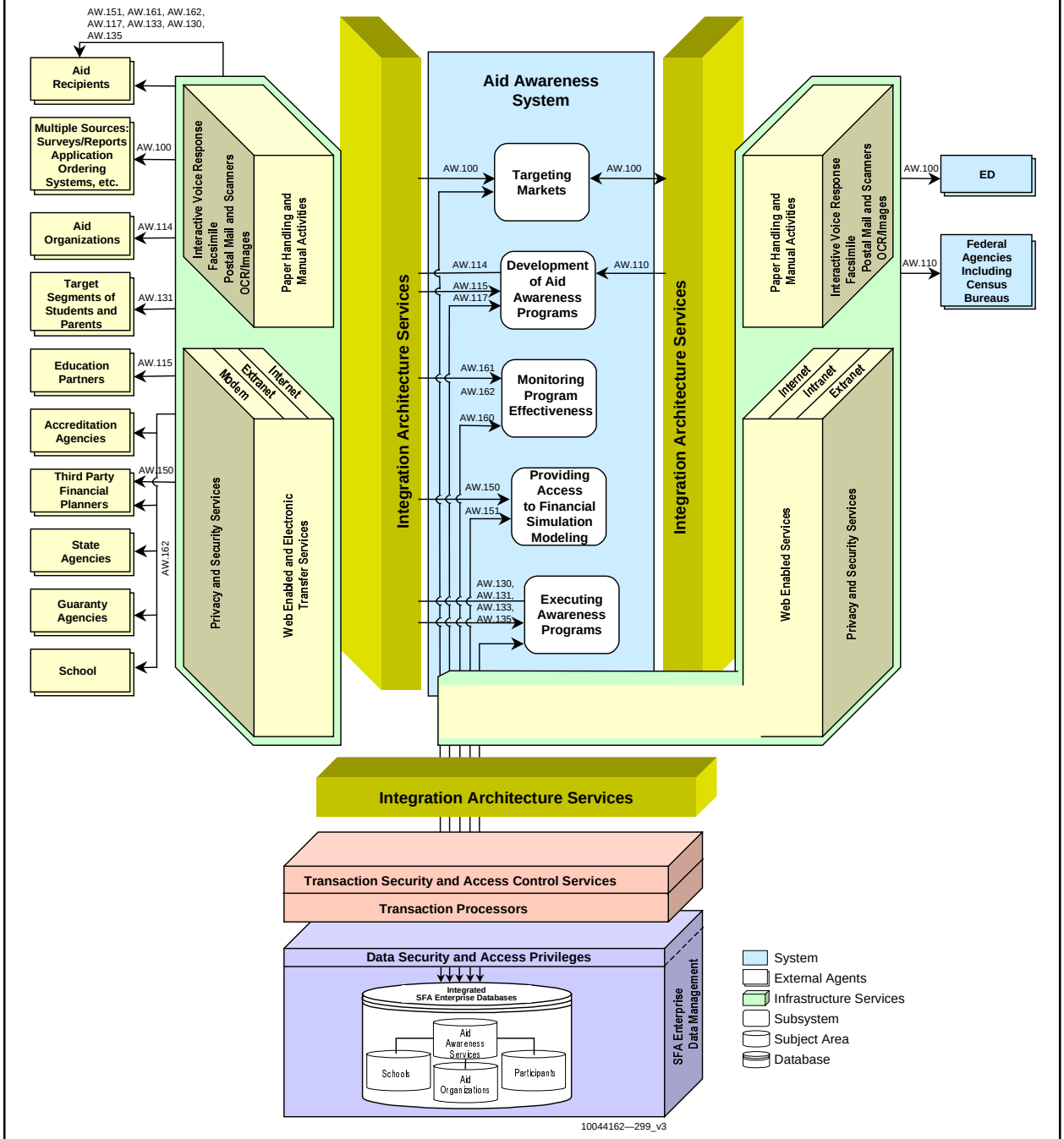

Figure IV.C-2. Aid Awareness System (Level II)

- Monitoring program effectiveness and making changes where needed.
- Providing Web services through the Internet, telephone contacts through toll-free "1-800-4-FEDAID", and additional points of contact including debt collection phone-in numbers and correspondence (both paper and e-mail).
- Maintaining substantial Web resources for students and an array of paper products ranging from Fact Sheets to multi-page publications, a Student Aid Inquiry P.O. Box and a correspondence system (paper and electronic) that provide responses to inquiries about student aid.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
AW-01.01 AW-01.02	**Targeting Markets**	AW.100	• The system collects data on aid recipients directly or indirectly through multiple sources (e.g. census data, commissioned surveys, NPSSA, existing SFA databases, grant reports, etc.) • The system collects data on aid products, services and distributions through multiple sources, like Application Ordering System, etc.
AW-01.04 AW-01.05 AW-01.06		AW.102	• The system maintains and extracts data on current and potential aid recipients for statistical analysis, marketing models, and comparisons to prior results. • The system builds profiles of target segments. • The system maps program characteristics and benefits to target segments.
AW-02.01 AW-02.02	**Development of Aid Awareness Programs**	AW.110	The system receives legislative, policies, regulations, non-SFA awareness program information from federal agencies that support SFA aid awareness programs.
2942		AW.111	The system maintains and extracts aid awareness data from the integrated SFA enterprise databases for the following: • Developing Title IV program information for aid recipients. • Delivering written, oral presentations, secondary school counseling, Web postings, events, etc. with the most impact for each target segments to aid recipients. • Developing and updating educational and promotional printed and electronic publications, presentations, videos, sound products, and other alternative formats for students, parents, secondary schools, colleges counselors and other student educators. • Testing pilot program of initiatives.

Requirements Number	Subsystem Name	Interface #	Descriptions
AW-02.05		AW.114	The system identifies potential aid organizations with access to appropriate media or similar awareness goals.
AW-02.06		AW.115	The system finalizes aid awareness program plans with potential partners.
AW-02.10 AW-02.11		AW.117	The system interacts with aid recipients for developing performance measurement criteria for each awareness program.
AW-03.01	**Executing Awareness Programs**	AW.130	The system disseminates awareness information and tools through softcopy/electronic media to the aid recipients.
AW-03.02		AW131	The system interfaces with the parents and students with following: • Receiving inquiries directly from students, parents and others via telephone/electronic media. • Producing, and warehousing awareness products and publications, and distributing them to aid recipients.
AW-03.04		AW.133	The system receives and fulfills orders for products and publication inquiries from secondary school recipients.
AW-03.05		AW.134	The system tracks and maintains inventory levels for products and publications.
AW-03.06		AW.135	The system posts Web resource guidance recommendations for quality educational student aid Web-sites on the SFA Web sites.
1060	**Providing Access to Financial Simulation Modeling**	AW.150	The system links financial planning sites to request simulations of possible financial aid packages and financial options.
1080		AW.151	The system provides information on long term debt management plans to aid recipients.
AW-05.01	**Monitoring Program Effectiveness**	AW.160	The system analyzes application data, production volumes, distribution performance data, routine feedback loops, focus groups, special studies, phone statistics, cost data, usage/understanding of products and other data.
AW-05.02		AW.161	The system recommends actions to improve program and distribution performance from aid recipients.
AW-05.04		AW.162	The system coordinates and exchanges information with external partners of schools, guaranty agencies, and state licensing and accreditation agencies to improve service delivery to students.

Aid Application System

The main function of this system is to collect and organize application information, verify this information and assist in the creation of aid packages for schools and students. The system designs the physical application form. It enables potential students to apply through the communication medium of their choice, including the Internet (such as FAFSA on the Web) or traditional mail channels. As information comes in to SFA, the system organizes and automatically verifies it. The Aid Application System (Figure IV.C-3) uses the information to calculate and report the participant's Expected Family Contribution (EFC) to schools who put together aid packages.

System Capabilities

The Aid Application system provides the capabilities that include:

- Efficiently collecting information from potential students in an effort to rapidly determine their financial needs and notifying them of their aid package decisions.
- Designing and updating application forms, interacting with educational community. It makes the forms available to students, parents, schools, and aid organizations through the communication medium of their choice, including the Internet (such as FAFSA on the Web) or traditional mail channels.
- Providing an organized single point of contact through which the information can be accessed as it comes back from students, parents, schools, and aid organizations.
- Serving as a central administrator in obtaining Eligibility Assessment Information for the student's Aid Application needs, performing a range of duties, from holding student authorizations for access to classified information, to generating promissory notes from a lender of the student's choice.
- Calculating the Estimated Family Contribution (EFC) for the potential student after the system has all the necessary information to Assess Participant Eligibility.
- Generating the eligibility determination that will be made available to schools that the student specifies, other grant agencies, and federal aid organizations.
- Providing necessary information to both schools and students to create the aid package.

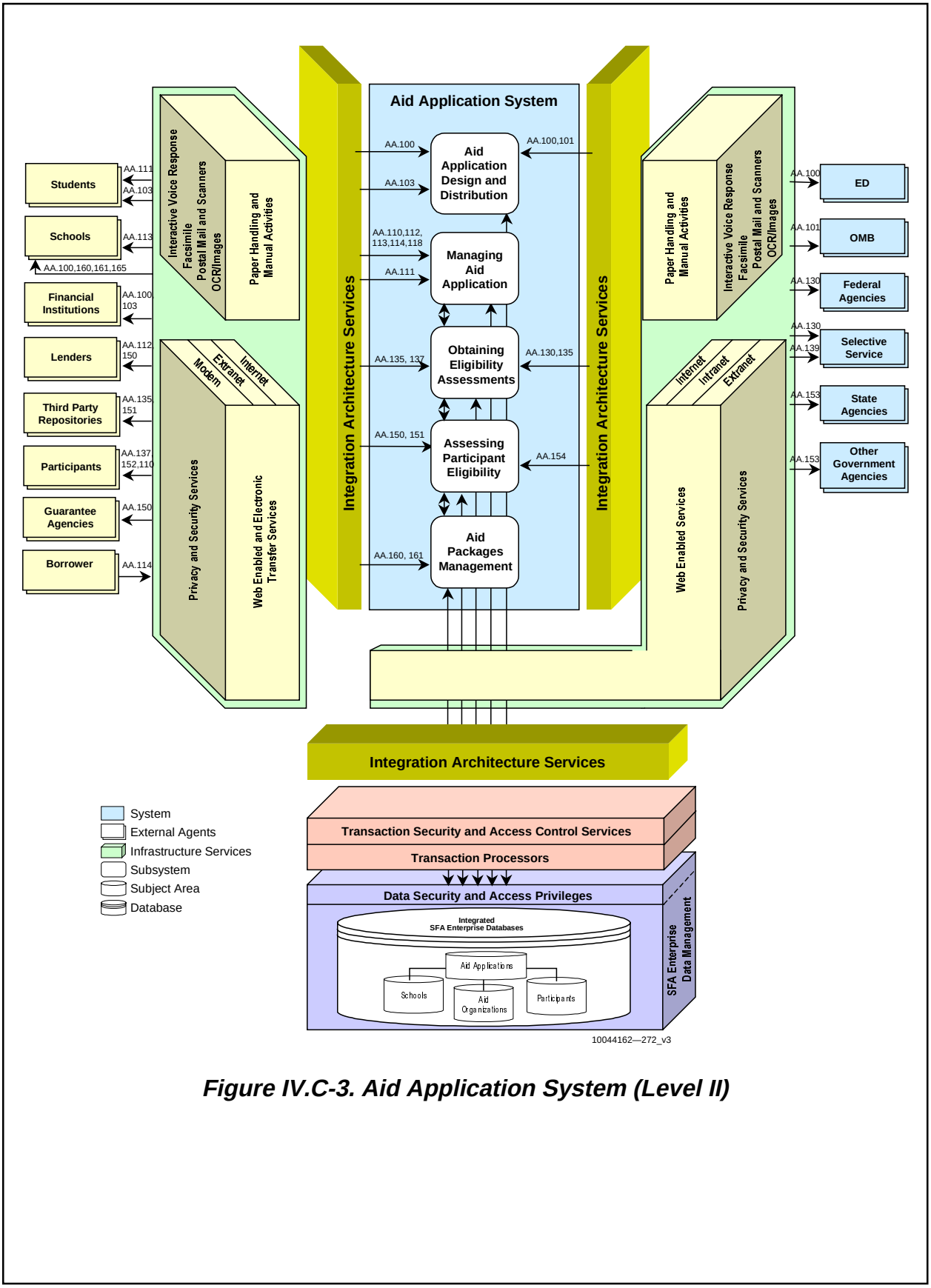

Figure IV.C-3. Aid Application System (Level II)

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
AA-00.01 AA-00.02	**Aid Application Design and Distribution**	AA.100	The system interacts with the educational community and ED for designing a financial aid application and continuous improvement on the application format.
AA-00.05 AA.00.06		AA.101	• The system receives additional supporting data from OMB for designing applications forms. • The system provides the ability to OMB to verify application format for final clearance.
AA-00.07 AA-00.08		AA.103	The system publishes aid application forms on the Web for students, parents, schools, and financial institutions. In addition, The system distributes the forms manually for those who don't have Web access.
1690 1710 AA-00.02	**Managing Aid Applications**	AA.110	The systems interfaces with participants: • To enables participants to submit aid applications for Federal Financial Aid, 24 hours a day, 7 days a week via the Web or MDE. • Provides a list of vendors to participants. • Initiates the automatic aid reapplication process by providing the prior year aid application information to the participant on the Web.
AA-00.01 AA-02		AA.111	The system interfaces with students: • To generate PIN numbers and distributes them to students to securely access and receive student aid data and payment history for federal loans and Title IV aid. • Receives renewal applications from students.
1720 1715		AA.112	The system interfaces with lenders: • To notify lenders of an applicant's request for a FFEL Lender. • Generates promissory and makes them available to lenders.
1720 1715 1860		AA.113	The system interfaces with schools: • To notify schools of an applicant's request for a FFEL Lender. • Generates promissory and makes them available to schools. • Receives up-to-date information on applicant's aid application from schools.

Requirements Number	Subsystem Name	Interface #	Descriptions
1742 1715		AA.114	The system interfaces with borrowers: • Receives digital signature/authentication from borrowers to endorse an aid application, promissory note, or waiver to release information to or from external databases. • Generates promissory and makes them available to borrowers.
1692		AA.118	The system renews the applicant's aid eligibility.
1750.02 1750.03 1750.04 1750.05 1750.06 1750.10	**Obtaining Eligibility Assessments**	AA.130	The system verifies information from Federal Agencies: • The immigration status of a participant who is not a US citizen with INS. • The participant's name, SSN, citizenship status and morality with SSA. • Obtains application information from IRS. • Verifies the participant's income information with HHS. • Verifies the participant's veteran's benefits income information with VA. • Verifies the participant's drug conviction sentence with DOJ. • Provides the ability to register participants for the Selective Service if the participant requests to do so. • Verifies with the Selective Services if the participant has complied with draft registration. • Performs incarcerated applicant matches with SSA upon aid application.
1750.07		AA.135	The system obtains participant personal information from third party repositories.
6040		AA.137	The system automatically reevaluates participant eligibility when the participant's record changes occur and notifies appropriate parties of the eligibility determination.
1070	**Assess Participant Eligibility**	AA.150	The system provides information to lenders and Guaranty Agencies about an individual financial assistance opportunities, when authorized by the individual.
1750.12		AA.151	The system supplies a participant's eligibility for Title IV financial aid to third parties with the participant's authorization.
1770 6080		AA.152	The system interfaces with participants: • Sends a Student Aid Report to participants of their Expected Family Contribution (EFC). • Notifies an applicant of the proper point of contact when the applicant's eligibility is denied.

Requirements Number	Subsystem Name	Interface #	Descriptions
1800.01 1800.02 1800.03		AA.153	The system makes a participant's eligibility determination available to state grant agencies, other government agencies, school designated on the participant's aid application, and authorized private scholarship agencies.
1870		AA.154	The system receives aid award and funding information from State Agencies.
1820	**Aid Package Management**	AA.160	The system provides the ability to schools for creating packages.
1920		AA.161	The system receives aid award package information from schools.

Loan Repayment System

The main function of the Loan Repayment System (Figure IV.C-4) is to capture student exit counseling details, provide invoices, process loan consolidation requests, and attempt collection on defaulted loans. The system provides students with different media through which loans can be paid. As borrowers enter repayment. The system generates various repayment options that best suit their circumstances and the overall financial impact of their debt. The system monitors a loan throughout its life cycle. The system identifies defaulted loans, and interfaces with wage garnishment and collection agencies to deal with defaults. The system manages consolidation loan information and originates consolidation loans upon receipt of borrower requests.

System Capabilities

The Loan Repayment system provides capabilities that include:

- Providing all necessary information about debt and accumulated indebtedness for repayment exit counseling.
- Generating various repayment options, notifying the borrower of options available to repay loan(s), and allowing the borrower to select a repayment plan. The repayment options may payoff any part of the outstanding balance in a lump sum payment, and the remaining balance in regular installments, or make regular installments on the entire outstanding balance.
- Handling requests for billing documentation (includes bills/statements), and for billing date changes for loans held by ED.
- Processing repayment information on all loans held by ED and refunding borrowers in case of overpayment of all final installments on Direct Loans.
- Processing deferments, forbearances, discharges, cancellations, and loan transfers of Direct Loans.

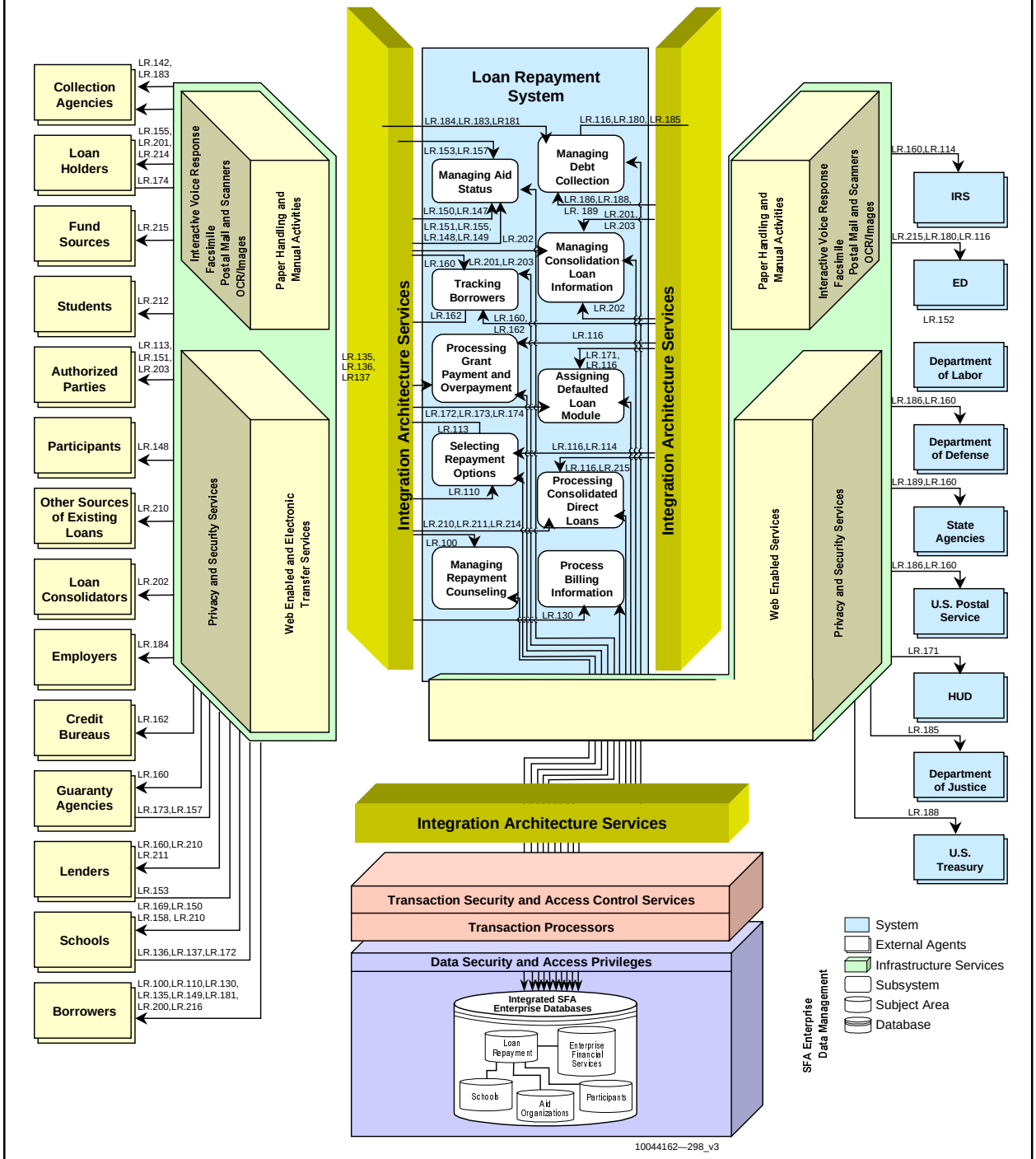

Figure IV.C-4. Loan Repayment System (Level II)

- Monitoring repayment history to update loan status to delinquency and/or default, and based on status updates, converting loans to repayment status. This does not apply to FFELP Loans.
- Supporting deferments, discharges, forbearances, and cancellations of FFELP loans by providing the borrower with appropriate information.
- Maintaining delinquent accounts through credit bureau reporting and skip-tracing.
- Selecting delinquent accounts and reporting those accounts to the appropriate credit bureau on a monthly basis.
- Maintaining current demographic information through the generation of skip trace requests on a periodic basis. The system accepts requests from guaranty agencies, schools, and lenders. Updated information is retrieved from state and federal agencies, including the United States Postal Service and the Internal Revenue Service. This does not apply to FFELP Loans.
- Monitoring (at specific periods) defaulted loans and assigning them to ED and/or collection agencies as appropriate. This does not apply to FFELP Loans.
- Managing all transactions related to identifying defaulted loans, billing defaulted borrowers and processing repayments received from defaulted borrowers for those loans assigned to ED.
- Managing the flow of information necessary to consolidate a borrower's separate loans. This information includes available consolidation agents, consolidation agent decisions, previous loan information, and loan payoff information.
- Managing the receipt, processing, and certification of loan consolidation requests. This does not apply to FFELP Loans.
- Triggering the Financial Partner Services transaction, which pays off lenders of the underlying loans for consolidation and results in a new origination record for the consolidated direct loan.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
1990 2000 2030	Managing Repayment Counseling	LR.100	The system interfaces with borrowers for the following: • Providing repayment counseling to borrowers, informing them of their rights and responsibilities as they relate to repayment of their loans. • Notifying the borrower of repayment terms and conditions when they receive repayment counseling. • Tracking whether borrowers have received repayment counseling, and which organization provided it.
2000 2002 2010 2070 2110 2114 2130 2180 2300 2360 2522	Selecting Repayment Options	LR.110	The system interfaces with borrowers for the following: • Notifying the repayment terms and conditions when borrowers receive repayment counseling. • Providing standard repayment options by program • Allowing them to select and request repayment options on their aid at any time (via the Web). • Providing access to repayment option modeling capabilities. • Allowing them to sign up for automatic payroll and/or other debits (e.g. direct debit from the borrower's bank, automatic scheduled payment to the loan holder). • Providing the regenerated repayment schedule for borrower's loans in the event that additional disbursements are made for the loan, the borrower requests to change repayment plans, or additional loans held by the same borrower enter repayment. • Providing automatic payroll deduction information. • Allowing them to submit a request for consolidation of existing loans into a Direct Loan or FFELP Loan. • Providing consolidated billing for Direct Loans. • Sending income contingent repayment terms for loans held by ED. • Receiving income contingent repayment terms acceptance from borrowers • Providing electronic debit advice to the borrower's bank for loans held by ED.
2060		LR.111	The system maintains repayment option decision information by borrower and loan.
2112		LR.112	The system recalculates annually the payment due on borrower's loans, based on the interest rate and the repayment plan selected for Direct Loans.

Requirements Number	Subsystem Name	Interface #	Descriptions
2150		LR.113	The system provides routing information for automatic payroll deductions to authorized parties.
2370		LR.114	The system verifies borrower's income with the IRS when the borrower selects income contingent repayment terms.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
1497 2004 2116 2552.04 2552.06 2552.07	Processing Billing Information	LR.130	The system interfaces with borrowers for the following: • Sending periodic interest statements during the grace period for Direct Loans that are unsubsidized, or that are consolidated while the student is still in school and have an unsubsidized or a PLUS portion. • Sending a disclosure statement prior to the end of the grace period. • Billing the payment due on a loan that is held by ED. • Generating financial aid statements of account. • Receiving billing date change requests from borrowers and, if the request is approved, updating the billing date accordingly for Direct Loans and loans assigned to ED for debt collection. • Generating appropriate billing documentation (includes bills/statements) for Direct Loans.
LR-04.01 1280 1282 1498 2179 2252	Processing Grant Payment and Overpayment	LR.135	The system interfaces with borrowers for the following: • Preparing and distributing all tax-related forms/documents (EG 1099 forms and Hope Scholarship verification). • Providing a single point of interface for receiving student aid data and payment history for Federal loans. • Providing a single point of interface for accessing student aid data other than Title IV aid. • Allowing them to make payment during the school, grace, or deferment period for the interest accrued, for Direct Loans that are unsubsidized, or that are consolidated while the student is still in school and has an unsubsidized or PLUS portion. • Sending refunds to them in the case of overpayments made by borrowers on the final payment of all loans held by ED. • Receiving loan payment information and updating loan principal, interest, collection charges, and late payment fee information as appropriate.

Requirements Number	Subsystem Name	Interface #	Descriptions
2620		LR.136	The system receives updated loan balance information from schools, lenders, and guaranty agencies for the loans that they hold.
2700		LR.137	The system receives grant overpayment information from schools.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
LR-03.01	Managing Aid Status	LR.145	The system provides exception reporting to identify errors and ensure corrections related to aid repayment processing.
1280 1282		LR.146	The system provides a single point of interface for receiving student aid data and payment history for Federal loans, and for accessing student aid data other than Title IV aid.
1484		LR.147	The system transfers Direct Loans among Direct Loan servicers and defaulted loans held by ED among collection agencies.
1486		LR.148	The system allows participants to reduce the amount of, or cancel disbursements within a designated time period for loans or grants.
1487 2005 2006 2240 2380 2400 2420 2442 2570 2622.01 2622.02 2622.03 2622.04 2622.05 AR-03.02 2634 2640		LR.149	The system interfaces with borrowers for the following: • Allowing them to notify the system of changes in their enrollment status (e.g., transfer or drop out of school), and determining the beginning of the grace period for a Direct Loan based on the borrower's enrollment status. • Processing the borrower's request to make payments during the grace period or during the in-school deferment period. • Allowing them to query their aid status. • Providing a means for borrowers to request deferment or forbearance on loans. • Determining whether borrowers qualify for in-school deferment. • Notifying them if they are eligible for in-school deferment when they enter repayment status. • Notifying them of a deferment or forbearance decision made by any of their loan holders.

Requirements Number	Subsystem Name	Interface #	Descriptions
			• Informing them if the service for their loan changes for loans held by ED. • Discharging a loan in the event of the borrower's death for loans held by ED. • Discharging a loan in the event of borrower disability for loans held by ED. • Discharging a loan in the event of false student certification for loans held by ED. • Discharging a loan in the event of school closure for loans held by ED. Discharging a loan in the event of a borrower's bankruptcy for loans held by ED.
			• Reinstating discharged loans, for loans held by ED. • Reinstating eligibility for Title IV aid as defaulted borrowers move on to an appropriate payment plan for their defaulted loans. • Sending a notice of default to borrowers and schools when one or more of their FDLP loans enter default.
2250		LR.151	The system allows authorized parties to query a student's aid status.
2320		LR.152	The system verifies the unemployment status of borrowers through matches with state Departments of Labor.
2390 2482		LR.153	The system interfaces with lenders for the following: Receiving notification of a deferment and/or forbearance. Receiving notification of lender service changes.
2412		LR.154	The system confirms whether borrowers qualify for active military deferment or forbearance by obtaining information from the Department of Defense, for loans held by ED.
2430 2440 2622.06		LR.155	The system interfaces with loan holders for the following: • Notifying a borrower's request for a deferment or forbearance on a loan. • Notifying a deferment or forbearance decision made by any individual loan holder. • Notifying them of a loan discharge decision made by any individual loan holder.
2484		LR.157	The system receives notification of guaranty agency and guaranty agency service changes from guaranty agencies.
2550		LR.158	The system notifies schools of borrowers' delinquency after they have missed consecutive loan repayment due dates.

Requirements Number	Subsystem Name	Interface #	Descriptions
2632		LR.159	The system monitors borrower's repayment history and, if necessary, updates loan status to default for all loans held by ED.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
2340 2350	Tracking Borrower	LR.161	• The system provides assistance in skip-tracing (an effort to find a borrower's correct address) to guaranty agencies, lenders and schools, through matches with the IRS, Postal Service, and state agencies. • The system provides assistance in skip tracing by allowing loan holders, loan services, and collection agencies to update address information for borrowers whose loans that they service.
2660 2752		LR.162	The system interfaces with credit bureaus for the following: • Providing information on borrowers to credit bureaus for loans held by ED. • Providing deletion letters to credit bureaus when borrowers have been erroneously reported to a credit bureau for loans held by ED.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
1280 1282	Assigning Defaulted Loan	LR.170	The system provides a single point of interface for receiving student aid data and payment history for Federal loans, and for accessing student aid data other then Title IV aid.
2680		LR.171	The system provides defaulted loan alerts to the Department of Housing and Urban Development through Computer Activated Interactive Voice Response System (CAIVRS).
2690 2716		LR.172	The system accepts the following from schools: • Defaulted Perkins Loans from schools, after unsuccessful collection, and assumes responsibility for collection efforts on the loan. • Grant overpayment balances from schools, after unsuccessful collection, and assumes responsibility for collection efforts on the debt.
2712		LR.173	The system accepts defaulted FFELP loans from guaranty agencies and, after unsuccessful collection, assumes responsibility for collection efforts on the loan.

Requirements Number	Subsystem Name	Interface #	Descriptions
2714		LR.174	The system accepts defaulted Federal Insured Student Loan (FISL) loans from loan holders and, after unsuccessful collection, assumes responsibility for collection efforts on the loan.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
AR-12.01 AR-12.03 AR-12.05	Managing Debt Collection	LR.180	The system provides the following to ED: • Managing control of delinquent accounts. • Identifying defaulted borrowers eligible for fund offset, and taking action on those accounts. • Identifying defaulted borrowers eligible for wage garnishment, and taking action on those accounts.
AR-12.04 AR-12.08 2662 2662.03 2662.04 2632 2634 2640 2742 2748 2750		LR.181	The system interfaces with borrowers for the following: • Coordinating with them for standard repayment billing to attempt collection of payments related to delinquent or defaulted loans, for loans held by ED. • Resolving disputes between borrowers and ED related to loan ownership and status. • Assessing necessary administrative fees against borrowers' defaulted loan balances, for loans held by ED. • Discharging a loan in the event of false student certification for Direct Loans and those loans that are held by ED for debt collection. • Discharging a loan in the event of school closure for Direct Loans and those loans that are assigned to ED for debt collection (including Perkins loans). • Monitoring borrower's repayment history. • Tracking the repayment history of borrowers with defaulted loans. • Sending a notice of default to borrowers when one or more of their loans enter default, for loans held by ED. • Garnishing wages from borrowers in defaulted status through private sector employers for loans held by ED.

Requirements Number	Subsystem Name	Interface #	Descriptions
			• Offsetting the wages of borrowers that have defaulted loans and are Federal employees for loans held by ED. • Handling any litigation action on borrowers with defaulted loans. Claims Collection Litigation Reports (CCLRs) are generated for individuals that are recommended for litigation. Hearing proceedings and findings are made available to litigators of borrowers with defaulted loans, for loans held by ED.
AR-12.06		LR.182	The system administers the process of taking litigation actions on defaulted individuals, for loans held by ED.
AR-12.07 2645 1484 2670 2754		LR.183	The system interfaces with collection agencies for the following: • Receiving and acting on recommendations from collection agencies when loans cannot be recovered by the agency. These recommendations may include initiating litigation or wage garnishment, for loans held by ED. • Referring debts (i.e., defaulted loans assigned to ED, grant overpayments assigned to ED, and defaulted Direct Loans) • Transferring defaulted loans held by ED among collection agencies. • Providing defaulted loan information to debt collection agencies collecting on defaulted loans on behalf of ED. • Processing payment requests for service fees due from a collection agency, for loans held by ED.
AR-12.09J 2744 2746		LR.184	The system interfaces with employers for the following: • Sending wage garnishment orders to employers, for loans held by ED. (This requirement was taken from JFMIP.) • Tracking employment status, garnished wage status changes, and movement to new private sector employers for borrowers with defaulted loans currently in wage garnishment for loans held by ED. • Notifying private sector employers of intent to commence wage garnishment for loans held by ED.

Requirements Number	Subsystem Name	Interface #	Descriptions
AR-12.13J 2800 2802		LR.185	The system interfaces with DOJ for the following: • Transmitting the Claims Collection Litigation Report (CCLR) that captures collection actions and current debtor information. • Handling updated accounts and their adjusted payment terms that are returned from the Department of Justice litigation for loans that ED holds.
2330		LR.186	The system obtains Federal employment confirmation by matches with the Department of Defense and U.S. Postal Service for those borrowers who are deemed eligible for Federal wage garnishment.
2632		LR.187	The system updates loan status to default for Direct Loans if necessary, and those loans that are assigned to ED for debt collection.
2730.01		LR.188	The system offsets Federal payments and refunds due to defaulted borrowers from the U.S. Treasury, and applies these offsets to the borrower's debt, for loans held by ED.
2730.02		LR.189	The system offsets state refunds due to defaulted borrowers from the state agency and applies these offsets to the borrower's debt, for loans held by ED.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.
2240 2260 2270 2280 2290 AR-07.01 2180 2191.02	Managing Consolidation Loan Information	LR.200	The system interfaces with borrowers for the following: • Allowing borrowers to query their aid status and to request consolidation information. • Providing a listing of those loan holders that are authorized to be consolidation agents to borrowers upon the borrower's request. • Receiving the choice of a loan consolidator from the borrower. • Providing consolidation information. • Allowing borrowers to submit a request for consolidation of existing loans into a Direct Loan or FFELP Loan. • Notifying them of the acceptance or rejection of their requests for consolidation of existing loans into a Direct Loan or FFELP Loan.

Requirements Number	Subsystem Name	Interface #	Descriptions
2170 2190		LR.201	The system interfaces with loan holders for the following: • Receiving loan consolidation requests from loan holders submitted on behalf of borrowers. • Notifying loan holders of the acceptance or rejection of consolidation requests they have submitted on behalf of borrowers.
2191		LR.202	The system provides loan consolidators with FFELP consolidation requests made by borrowers.
2250		LR.203	The system allows authorized parties to query a student's aid status.
2220 2230	Processing Consolidated Direct Loans	LR.210	• The system requests verification of loan existence and balance from schools (for Perkins Loans), lenders (for FFELP Loans) and other sources of existing loans based upon the consolidation application provided by the applicant or loan holder. • The system receives verification of loan existence and balance from schools (for Perkins Loans) and lenders (for FFELP Loans) and other loan holders.
LR-06.01		LR.211	The system processes direct loan consolidations partially or in full depending on whether SFA receives lender verification on all loans that are eligible for consolidation.
LR-06.02		LR.212	The system sends disclosures and promissory notes to students for FDLP loans.
2172		LR.213	The system generates payment requests for underlying loans as a result of borrower's request for a Direct Consolidation Loan.
2178 2182		LR.214	The system interfaces with loan holders for the following: • Receiving information from loan holders on underpayments made when paying off an underlying loan of a Direct Consolidation Loan and authorizes payments to the loan holder. • Reducing the balance of a direct consolidation loan when payoff overpayments are made to ED by loan holders.
1270		LR.215	The system enables ED and other specified fund sources to accept or reject award origination records based upon Title IV aid program criteria.
2580		LR.216	The system receives requests from borrowers to refinance their loans.

Requirements Number	Subsystem Name	Interface #	Descriptions
2580.01		LR.217	The system informs the lender of a borrower's request to refinance their loans.
2920		LR.116	The system provides authorized staff access to audit trail information (backward and forward from the point of origination through repayment) to ensure that for each Title IV program, the correct Federal funds reach the right recipient at the appropriate time.

School System

The main function of the School System (Figure IV.C-5) is to provide all necessary support in an automated fashion for better school services. The system determines program eligibility through training and performance review. It categorizes schools' effectiveness in managing Federal funds and achieving performance-based outcomes by using sophisticated performance and risk analysis tools. The system provides access privileges to schools, so they can directly perform self-audits and take action to improve performance before corrective action is necessary. The system processes financial transactions specific to schools, and provides support for training/education and program/eligibility reviews.

System Capabilities

The School system provides the capabilities that include:

- Analyzing and evaluating domestic and foreign school's applications for aid programs. It notifies schools of the determination of their eligibility and certification to participate in Title IV programs. Statutory eligibility, administrative capability and financial capability are key determinants of school eligibility.
- Determining the parameters under which domestic and foreign schools may participate in Title IV programs, related pilots, experimental demonstrations, and other special programs based on a variety of dimensions.
- Administering the transactions related to discontinuing or deactivating a domestic or foreign school's participation in Title IV programs.
- Providing all necessary supports (on-line training and training supporting information) to educate financial aid professionals and other school administrators to better understand and use the resources available to them from the system.

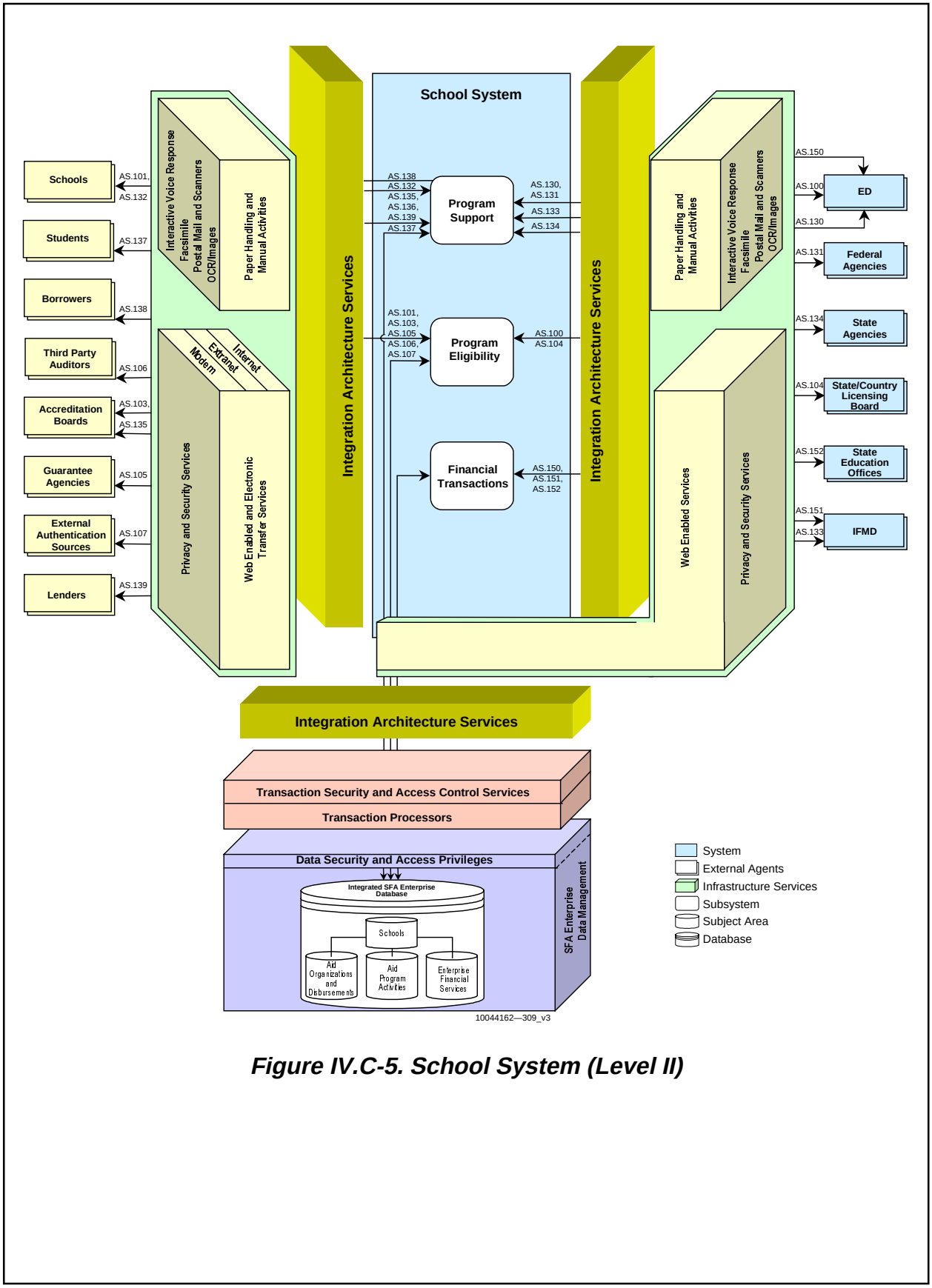

Figure IV.C-5. School System (Level II)

- Collecting and maintaining information related to participating domestic and foreign schools and Title IV programs administered at the school level. The information includes, but is not limited to, school application information, program reviews, school audits, cohort default rates, experimental sites, financial analysis, addresses, school officials, financial aid officials, school closure, quality assurance data and other pertinent administrative and financial data.
- Interfacing and accessing school-related data that resides outside of the system and outside of ED. This information is accessed and used to conduct predictive analysis related to school performance.
- Generating internal and external data related to domestic and foreign school performance across a number of administrative, financial and outcome-based performance indicators.
- Efficiently interfacing with the Financial Management System to simulate, and calculate the authorization amount to be awarded to a school for each of the campus-based programs, and generating an award notice to be sent to the school.
- Determining the initial authorization amount and notifying each school participating in the Pell Grant program of its initial authorization amount. The authorization amount is the maximum aggregate amount that each institution is allowed to distribute in the form of Pell Grant payments, and is calculated at the beginning of each program year.
- Executing financial adjustments throughout the year and as part of year-end accounting closeout procedures to reconcile payment and expenditure records.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
3250 3290 3230 3330 3480	**Program Eligibility**	AS.100	The system interfaces with ED for the following: • Providing change-of-ownership notices • Receiving requests for school letters of credit • Receiving school start/stop orders • Receiving reviews of schools, school audit and financial information • Receiving a Hold payment order for a school
3170 3180 3190 3200 3240 3255 3270		AS.101	The system interfaces with schools for the following: • Receiving school applications for eligibility or re-certification • Notifying schools of their (non-)eligibility to participate in Title IV programs • Receiving signed PPAs • Requesting and receiving signed letters of credits • Receiving accreditation information from domestic/foreign schools • Receiving change of ownership notice • Notifying schools of start/stop payment orders and discontinuance of eligibility
3164 3340 3350		AS.103	The system interfaces with accreditation board: • Providing requests for information • Receiving reviews • Receiving accreditation information
3164 3340 3350		AS.104	The system interfaces with state/country licensing board: • Providing requests for information • Receiving reviews • Receiving licensing information from state/country licensing boards
3320 SS-03.01		AS.105	The system interfaces with guaranty agencies for the following: • Receiving reviews and school audit information • Notifying them when a school's eligibility is discontinued
3370		AS.106	The system receives third party audit information for domestic schools.
6060		AS.107	The system receives and sends PIN or OPE Ids to external authentication sources.

Requirements Number	Subsystem Name	Interface #	Descriptions
SS-05.01 SS-06.08 SS-06.16 3610 3620	**Program Support**	AS.130	The system interfaces with ED for the following: • Receiving GAPS and IPEDS data from ED/FMS • Distributing program review and audit data • Distributing appeals of audit and review determination • Distributing student default information • Receiving school cohort default rates
SS-05.01		AS.131	The system receives data from other federal agencies like GSA, Census bureau, INS, VA, etc.
3372 SS-06.16 3590 3600 3650 3400 3410 3210		AS.132	The system interfaces with schools for the following: • Receiving A-133 and OIG financial statements • Receiving non-default rate appeals • Receiving school draft cohort default rate challenges • Receiving school draft cohort default rate appeals • Providing school cohort default rate appeal status • Sending LST notice data • Receiving LST appeals • Receiving FISAP data from the domestic schools
3220		AS.133	The system sends FISAP data to IFMD.
SS-05.02		AS.134	The system sends/receives notice of closed schools to state agencies.
SS-05.02		AS.135	The system sends/receives notice of closed schools to accreditation boards.
SS-05.02		AS.136	The system sends/receives notice of closed schools to guaranty agencies.
SS-05.02 3450 SS-05.03		AS.137	The system interfaces with students for the following: • Sending and receiving notice of closed schools • Sending refund information to student in case of school closure • Sending Teachouts information to students in case of school closures
SS-05.03		AS.138	The system informs borrowers of a potential for closed school loan discharges.

Requirements Number	Subsystem Name	Interface #	Descriptions
1260.03 1540 1543 1572.01 1580.01 3200 5260 5280 SS-08.01 1260.03 1572.02 1580.02 1590.02 SS-10.01 1590.01 5280 SS-10.02 SS-10.03 SS-10.01 1590.01 5280 SS-10.02 SS-10.03	**Financial Transactions for Schools**	AS.150	The system interfaces with schools for the following: • Providing the drawdown method of disbursements to schools. • Providing Federal Perkins Loan, FSEOG, and FWS school authorization amounts to ED. • Allowing the allocation of special authorization amounts for Campus-Based programs. • Reallocating school Campus-Based Program (Perkins Loan, FSEOG, and FWS) authorization amounts based upon unexpended award balances as reported by schools. • Notifying schools of their Campus-Based Program authorization amounts and Pell Grant authorization amounts. • Requesting and receiving signed letters of credit from schools. • Adjusting school awards and authorizations if necessary. • Tracking Perkins loan portfolio balances and FCC disbursed amounts per school per award year. • Calculating and authorizing administrative cost allowance payments to schools as reimbursement for costs incurred by a school to administer the Pell Grant programs. • Monitoring and adjusting authorization levels for each school to ensure schools have sufficient funds to issue Pell Grants. • Generating school Pell Grant ACH payment requests. • Reimbursing schools for the amount of Perkins loans they report as being canceled when a student is exempt from repayment due to employment status upon graduation. • Generating school Campus-Based Program ACH payment requests. • Tracking Perkins loan portfolio balances and FCC disbursed amounts per school per award year. • Completing the annual closeout process that may result in money owed to the system from the school (overpayment scenario) or money owed to the school from the system (underpayment scenario). • Providing an alternative method to advance payment for schools so that funds are disbursed by the school and then reimbursed by the system upon approval for Pell and Campus-Based programs.

Requirements Number	Subsystem Name	Interface #	Descriptions
1542		AS.151	The system processes Campus-Based award amounts at the request of IFMD, using the school information stored in the system at the time of the request.
1254		AS.152	The system requests low-income school information from state education offices annually, based on the screening criteria sent to them.

Aid Origination and Disbursement System (for FDLP Loans)

The main function of this system (Figure IV.C-6) is to process a loan through to the authorization of disbursements, after the application and supporting documentation have been received. The system receives and checks the accuracy of data reported on the origination record, then applies similar analysis to the disbursement record. After the system performs edit checks of the origination and disbursement records, it receives, stores and distributes participant authorizations. The system provides all necessary supports to SFA to authorize payments to schools based on either a scheduled disbursement date or an invoice method. After distributions have been made through the Financial Transactions, the system reconciles drawdowns against disbursements, adjustments, and cancellation records. Further, it tracks the enrollment status of all program participants and forwards the information to lenders and guaranty agencies.

System Capabilities

The Aid Origination and Disbursement system provides the capabilities that include:

- Receiving origination and disbursement records from schools and checks for a valid edit result.
- Checking the incoming disbursement records for participant defaults, overpayments, and aid thresholds. The outcome of this check is the valid disbursement record.
- Receives, stores, and distributes borrower authorizations. Borrower authorizations are necessary before any funds are disbursed to the school.
- Authorizing invoice and scheduling disbursements to schools based on valid incoming origination and/or disbursement records.
- Receiving fund source disbursement information and default loan information from the lender.

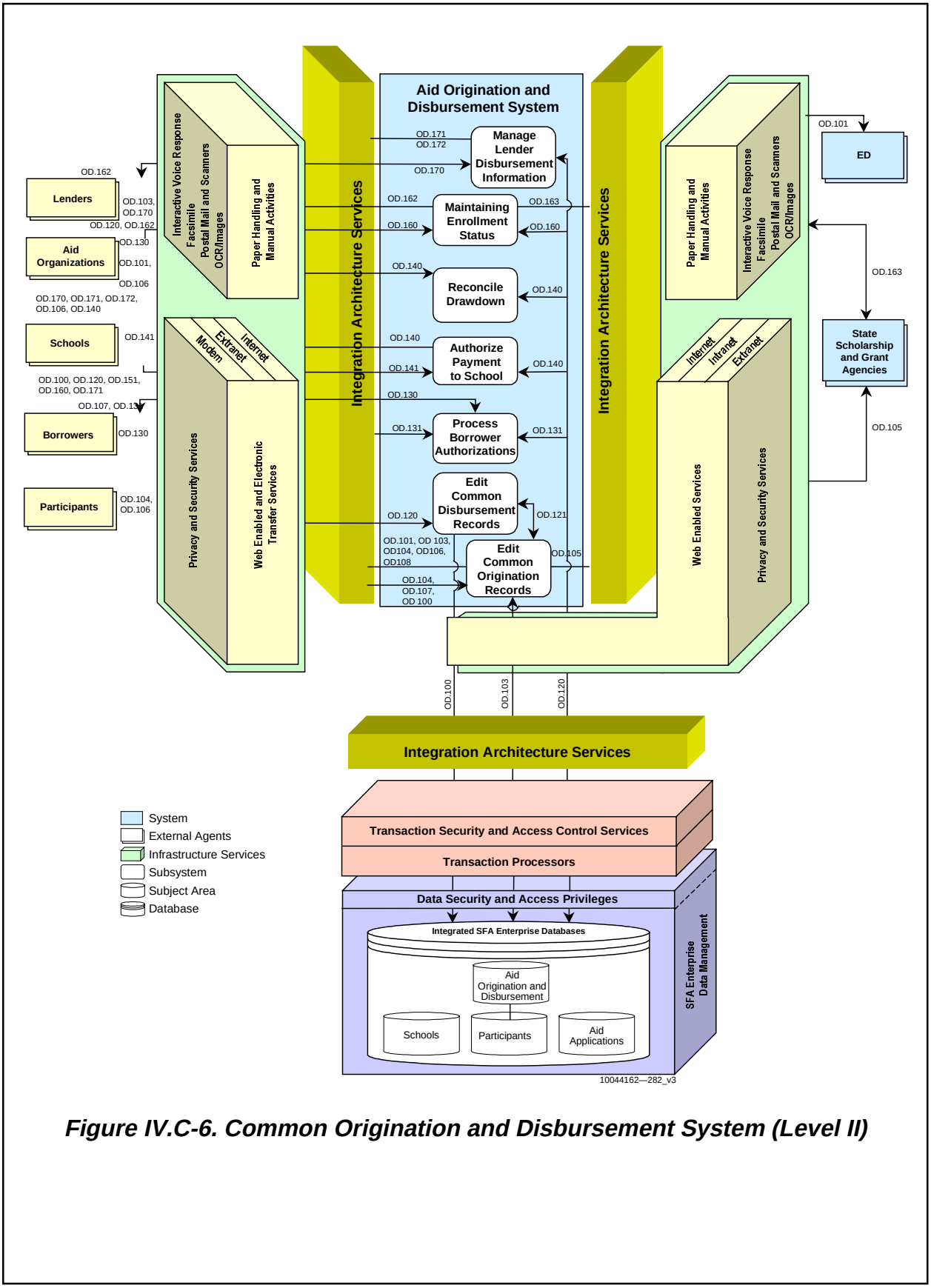

Figure IV.C-6. Common Origination and Disbursement System (Level II)

- Distributing student-level disbursement information to schools.
- Reconciling drawdown amounts disbursed to schools against disbursements, adjustments, and cancellation records received from schools.
- Tracking a student's enrollment status by a school.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
1224 1445 1446 1460 2910	**Editing Common Origination Records**	OD.100	The system interfaces with schools for the following: • Receiving disbursement records, origination records, adjustments, and cancellations • Notifying schools when two or more Pell Grant origination records or disbursement records are received from different schools for the same academic period and the same participant • Informing schools of the results of edits applied to disbursement records, origination records, adjustments, and cancellations • Monitoring the receipt of disbursement records from schools to ensure that they are submitted on a timely basis
1270		OD.101	The system enables ED to accept or reject award origination records based on Title IV aid program criteria.
1350		OD.102	The system maintains an audit trail of all student aid origination and payment records by aid program by student.
1224		OD.103	The system receives disbursement records, origination records, adjustments, and cancellations from lenders.
1445 1446 1460		OD.104	The system interfaces with participants for the following: • Notifying participants when two or more Pell Grant origination records or disbursements are received from different schools for the same academic period and the same participant. • Informing the participant of the results of edits applied to disbursement records, origination records, adjustments, and cancellations.
1458		OD.105	The system transmits to state grant agencies the origination records for residents of the state receiving Pell Grants.

Requirements Number	Subsystem Name	Interface #	Descriptions
1270 1460		OD.106	The system interfaces with fund source for the following: • Informing the fund source of the results of edits applied to disbursement records, origination records, adjustments, and cancellations • Enabling other specified fund sources to accept or reject award origination records based on Title IV aid program criteria
1492 1495		OD.107	The system interfaces with borrowers for the following: • Allowing the borrower to request an endorser in the case of a failed credit check for a Direct Plus loan. • Notifying the borrower and the school of the credit check result for a Direct Plus loan.
1400 1450	**Editing Disbursement Records**	OD.120	The system interfaces with schools for the following: • Receiving the origination records • Providing the results of edits of disbursement records • Editing disbursement record against origination records based on school academic period start date, student default status (where the defaulted loan is not reinstated), grant overpayment status, and award threshold amount for the aid program.
1400 1450		OD.121	The system receives the origination records from aid organizations.
1080	**Processing Borrower Authorization**	OD.130	The system interacts with borrowers and aid organizations for projecting long-term debt management.
1380 1390 2001 2003		OD.131	The system interfaces with borrowers for the following: • Projecting long-term debt management • Notifying that the borrower authorize the disbursement of funds to a school before the disbursement is made on a Stafford, PLUS, or Perkins loan for that borrower • Prompting the borrower to authorize the disbursement of funds to a school for the borrower's loan. The prompt shall occur when the participant has not authorized the disbursement to the school within 30 days of the effective date of the disbursement request made by the school • Providing the maximum interest rate and formal loan disclosures.

Requirements Number	Subsystem Name	Interface #	Descriptions
1230	**Authorizing Payments to Schools**	OD.140	The system uses a common integrated origination, payment, and reconciliation process for all Title IV student financial assistance programs to aid organizations.
1240 1260.01 1260.02 1260.03		OD.141	The system interfaces with schools for the following: • Providing standard formats for origination, disbursement, adjustment, and cancellation records for all Title IV student financial assistance programs. • Authorizing Payments to Schools supports the JIT payment method based on actual disbursement records. Fund sources will generate automated clearinghouse (ACH) payments in response to student disbursement records (invoices) submitted by schools. • Supporting the scheduled method of disbursement, and the drawdown method of disbursements.
1230	**Reconciling Drawdown**	OD.140	The system uses a common integrated origination, payment, and reconciliation process for all Title IV student financial assistance programs to aid organizations.
1260.03 1412 1592		OD.151	The system interfaces with schools for the following: • Supporting the drawdown method of disbursements • Reconciling the amounts drawn-down by schools against the amounts reported by the schools as having been disbursed to students including adjustments, cancellations, and refunds. • Receiving information about unused drawdown funds returned by schools.
2820 2830	**Maintaining Enrollment Status**	OD.160	The system interfaces with schools or their servicers for the following: • Receiving reports on enrollment data such as percentage enrollment, credit hours, and clock hours on all enrolled students • Receiving reports on student enrollment changes no less frequently than once per academic period, but shall allow them to report as often as they wish.
2850		OD.162	The system provides to aid organizations the participant enrollment changes that affect aid status.
2870		OD.163	The system allows state scholarship and grant agencies access to participant enrollment information.

Requirements Number	Subsystem Name	Interface #	Descriptions
1224	**Managing Lenders Disbursement Information**	OD.170	The system receives disbursement records, origination records, adjustments, and cancellations from aid organizations.
1440 1460 1600		OD.171	The system interfaces with schools for the following: • Receiving disbursement records, origination records, adjustments, and cancellations • Notifying the school when the system authorizes disbursement of funds • Informing the school of the results of edits applied to disbursement records, origination records, adjustments, and cancellations • Providing student disbursement rosters. The disbursement rosters shall list the students for whom the disbursement being made to the school was intended, and the award amount that each student is expected to receive.
1460		OD.172	The system informs the borrower, and the fund source of the results of edits applied to disbursement records, origination records, adjustments, and cancellations.

Financial Partner System

The main function of this system (Figure IV.C-7) is to provide services to lenders and guaranty agencies in their delivery of aid to students. The system receives information from and provides information to lenders and guaranty agencies related to SFA programs and individual student participants. The types of services provided to financial partners include training and education, eligibility processing, informational updates, financial transactions and program performance analysis and review. The system provides accurate, up-to-date information and real-time shared access to transaction data on loan portfolios to lenders and guaranty agencies.

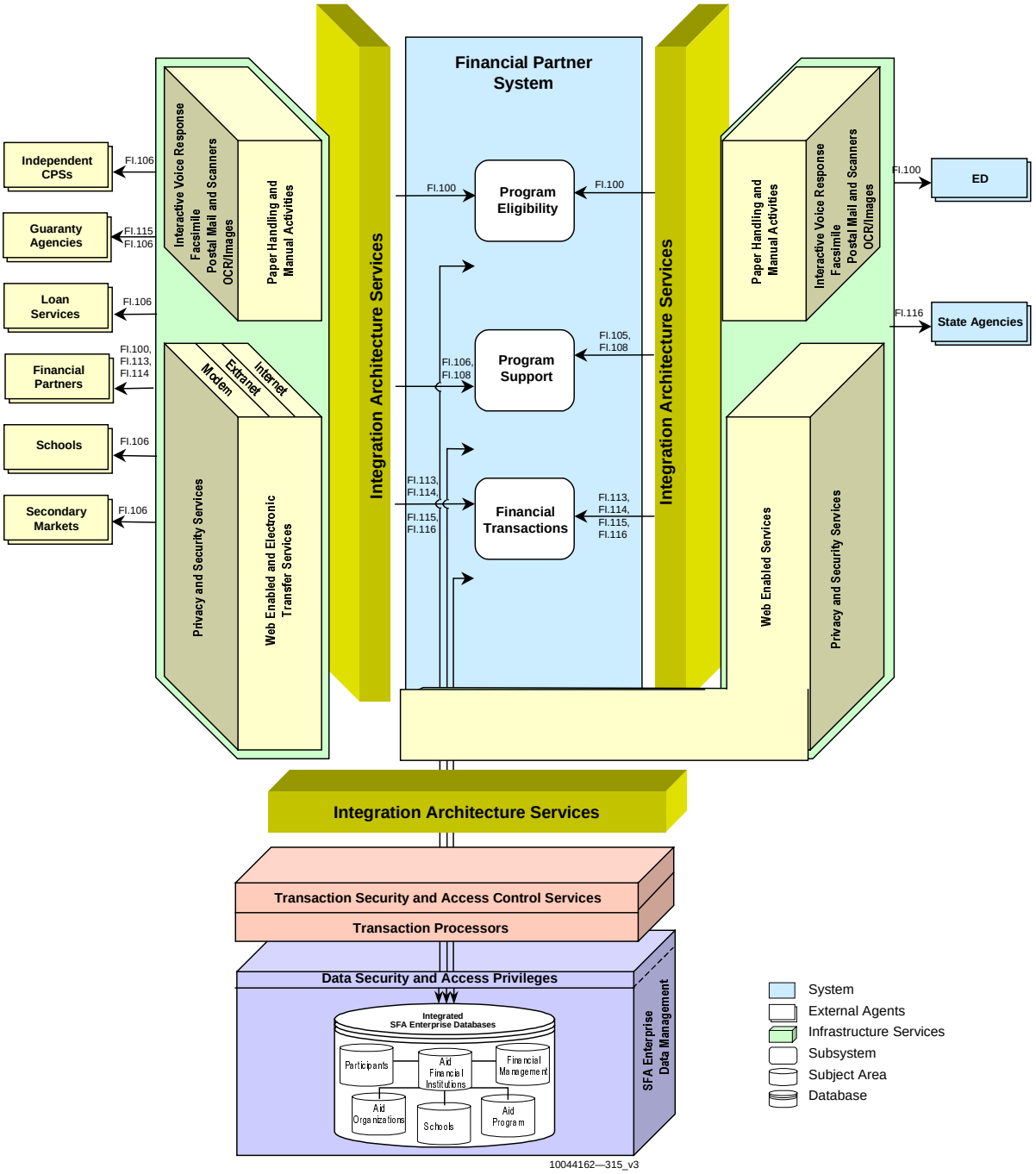

Figure IV.C-7. Financial Partner System (Level II)

System Capabilities

The Aid Financial Partner system provides capabilities that include:

- Receiving program application information from potential lenders and generating program eligibility notices.
- Setting lender participation levels in the FFELP program based on lender performance as determined through internal and external program reviews, audits and other forms of performance monitoring conducted by ED.
- Managing the deactivation of lender eligibility based on performance.
- Collecting and maintaining financial partner profiles, program reviews, and audits that are performed external and internal to ED. The system also collects, updates, and tracks performance data for use in risk analysis and performance reviews conducted by ED.
- Analyzing the risk profile of financial partners to identify potential issues and targeting program reviews conducted by ED. The system will enable ED to predict and monitor performance based on pre-determined indicators or drivers that vary by type of financial partner.
- Authorizing and processing interest invoice claims and special allowance invoices from fund sources. It also manages payoffs to lenders for consolidation of direct loans.
- Receiving and processing state applications for the Federal contributions programs.
- Managing information about the federal LEAPP contributions to a given state. The LEAPP contribution is allotted based on several criteria.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Description
3862 FI-01.02 FI-03	**Program Eligibility**	FI.100	In this activity, the system interacts with the financial partner or lender: • Financial partner requests from SFA for a copy of an application to participate in Title IV program • SFA sends the financial partner or prospective lender a copy of Lender Participation Questionnaire (LPQ) • SFA approves the lender as participant in the Title IV program • OSF deactivates and discontinues the participation of a financial partner in the Title IV program
3690 3940 FI-05.06 3890 3896 3900 3930	**Program Support**	FI.105	The system interfaces with Financial Partner in appeal process and review of a Financial Partner. The system takes action on non-compliance performance and prepares and distributes Program Determination Letters (PDLs). The system triggers a limitation on participation or discontinuance of participation.
FI-05.01 FI-05.02 FI-05.03 FI-05.04 5330 3700 3740 3840 3850 3860 3870 1170 1180 1190 2900 2930 2950		FI.106	The system interfaces with lenders, servicers, guaranty agencies, Independent Public Accounts, and secondary markets to: • Collects and maintains Financial Partner External Reviews, Independent Public Accountants, received from lenders, servicers, guaranty agencies, and secondary markets. • The system interfaces with lenders, servicers, and guaranty agencies to provide performance default rates to lenders, servicers, guaranty agencies.
3830 3882 1150		FI.108	The system interfaces with ED to monitor Financial Partner performance and provide market default rates to ED.

Requirements Number	Subsystem Name	Interface #	Description
1610 1614 FI-09.01 FI-09.02	**Financial Transactions**	FI.113	The system interfaces with lenders for the following: • Receiving loan-holder interest and special allowance invoices from the loan holders. • Sending approval/rejection notices to the loan holder for interest and special allowance invoices received from that loan holder. • Distributing payoffs to lenders for Direct Loan consolidations. • Offsetting payments to lenders through origination fees, lender fees, treasury offsets, or other receivables.
1616 1620 FI-10.01 FI-10.02 1652		FI.114	The system interfaces with ED for the following: • Providing loan holder interest and special allowance authorizations to ED/CFO for payment. • Confirming maintenance fees, generating payment requests, and sending them to ED/CFO for payment. • Confirming processing fees, generating payment requests, and sending them to ED/CFO for payment. • Sending payment request for ED/CFO for payment.
FI-10.03 1654 1656		FI.115	The system interfaces with Guaranty Agencies for the following: • Receiving and maintaining agencies' reinsurance claim data. • Sending approvals/rejections of reinsurance fee claims.
1572.03 1587 1580.03 1585 1590.03 1587		FI.116	The system interfaces with state agencies for the following: • Receiving reports on disbursements of Leveraging Educational Assistance Program Partnership (LEAPP) funds from state grant agencies and calculating and maintaining the level of state LEAPP applications. • Notifying states of the LEAPP authorization amounts. • Receiving profile information. • Generating state LEAPP ACH payment requests. • Receiving reports on disbursements of LEAPP funds.

Financial Management System

The Financial Management System (Figure IV.C-8) manages the flow of funds between students, SFA, schools, financial partners and other government agencies. The system produces reports that SFA management will use to monitor how well the SFA organization is performing relative to one of its three primary objectives: reducing the overall cost of student financial assistance. The general ledger subsystem, as part of the system is involved either directly or indirectly with every financial event, since transactions to record financial events must be posted to the Department of Education general ledger and/or the SFA general ledger. All other subsystems interact with the general ledger subsystem but may not be involved with every financial transaction. The Payment Management subsystem performs processing SFA payments. The core Financial Management subsystem maintains system-processing rules consistent with established financial management policy. The funds management subsystem supports both government-wide funds management policies and SFA's internal funds allocation methods and controls. The receipt management subsystem supports activities associated with recording SFA cash receipts, including servicing and collecting receivables. The cost management subsystem measures SFA costs at many different levels. Ultimately, the core financial system management subsystem is responsible for managing an integrated financial management system, which will perform all of the financial management.

System Capabilities

The Financial Management System provides capabilities that include:

- Maintaining system-processing rules consistent with established financial management policy.
- Maintaining account balances by the fund structure and by individual general ledger accounts established in the Core Financial System Management subsystem. It also maintains audit trail information of all financial transactions sent to and received from ED/CFO, ED/Budget, and SFA.
- Receiving funding information from ED/CFO and managing fund appropriations, allotment, and balance for each aid program.
- Providing supports both government-wide funds management policies and SFA's internal funds allocation methods and controls.

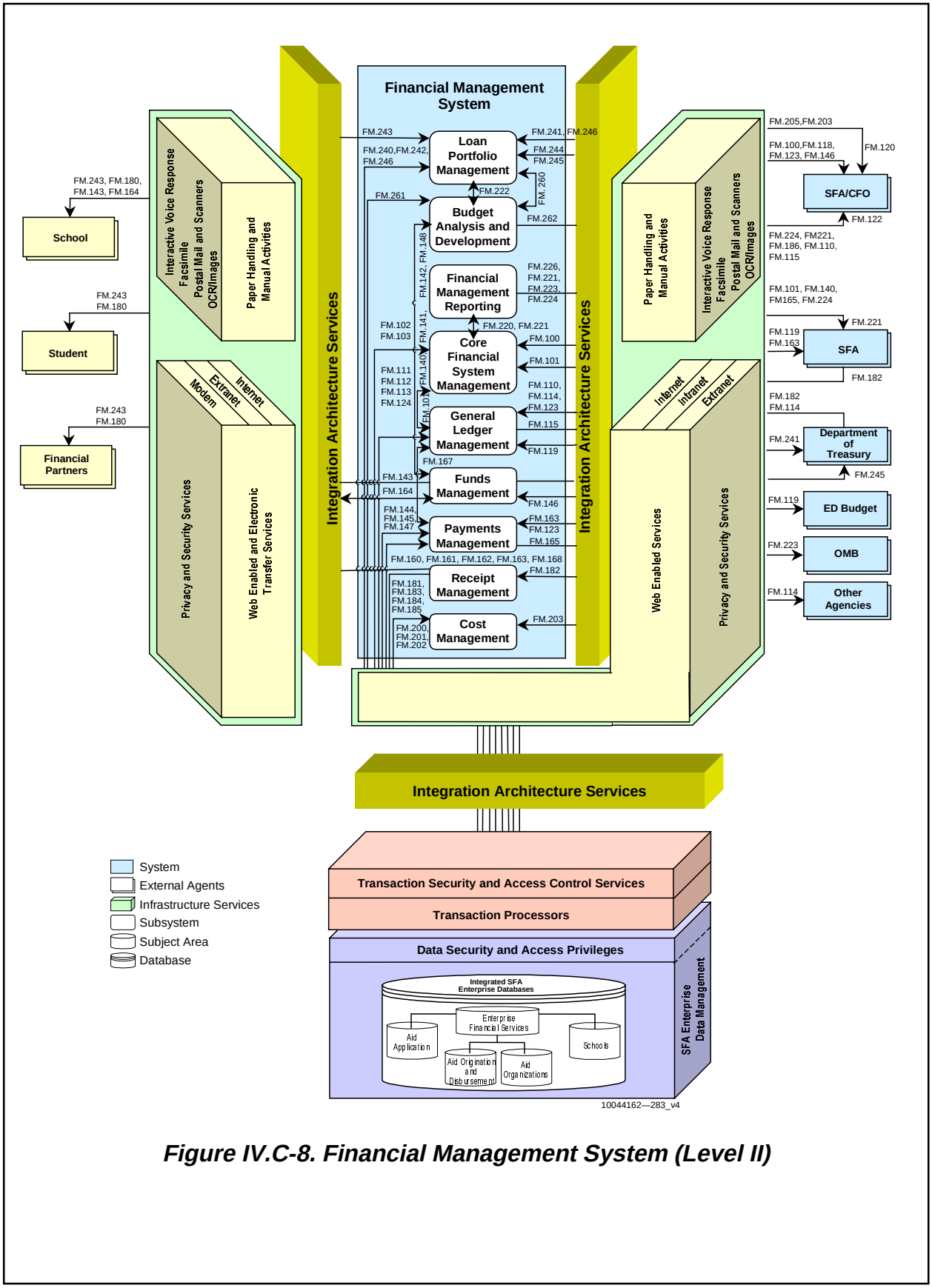

Figure IV.C-8. Financial Management System (Level II)

- Providing appropriate control over all payments made by or on behalf of SFA. SFA may make payments to vendors in accordance with contracts; to employees for salaries and expense reimbursements; to other Federal agencies for reimbursable work performed; to individual citizens receiving Federal benefits; to recipients of Federal loans.
- Maintaining accounts payable records, such as loan repayment transactions and interest payments.
- Maintaining accounts receivable records by recording, billing, monitoring, and collecting amounts due the government whether previously established as a receivable or not.
- Receiving and managing school drawdown information and sending this information to ED/CFO.
- Enabling SFA to monitor and manage costs by cost object, activity, process, SFA organization unit, aid program, loan type, school, and financial partner.
- Providing accurate program management information, performance measures, and financial statements with verifiable disclosure of the cost of activities.
- Providing financial information in a timely and useful fashion to support management's fiduciary role.
- Supporting budget information and extension sub-functions; supporting fiscal management of program delivery and program decision making; and supporting internal and external reporting requirements.
- Evaluating the management and performance of the SFA guaranteed and direct loan portfolios.
- Preparing the SFA budgets during the budget formulation process. The system establishes the baseline from which to build the budget, tracks initial submissions and modifications to the budget, provides budget data for inclusion in the President's Budget, and tracks the status of the budget request as it moves through the process until enactment of appropriations.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
FS-01.01J	**Core Financial System Management**	FM.100	FMS captures data at point-of-entry in a format that can be "rolled-up" in a standard way throughout SFA; planning, budgeting, and accounting data.
FS-01.02J		FM.101	FMS establishes the general ledger account structure for SFA in accordance with the U.S. Government Standard General Ledger (SGL) and the transaction edit and posting rules to record financial events.
FS-01.03J		FM.102	FMS is able to process transactions originating in other systems, recording and keeping track of such transactions and related information, in order to provide the basis for central financial control.
FS-01.04J		FM.103	FMS removes data that is no longer needed for immediate access from the system data stores used for inquiry and reporting on current information.
FS-02.01J	**General Ledger Management**	FM.110	FMS records financial transactions in the general ledger from ED/CFO.
FS-02.02J		FM.111	FMS creates accruals, and consolidation transactions and closing entries needed at the end of a period (month or year) for reporting purposes.
FS-02.02J		FM.112	FMS controls and executes period-end system processes necessary to open a new reporting period, such as rolling forward account balances or reversing certain year-end entries.
FS-02.02J		FM.113	FMS prepares consolidated financial statements.
5220		FM.114	FMS performs the General Ledger Analysis and Reconciliation process, which determines amounts posted to general ledger control accounts that agree with more detailed subsidiary accounts. The system balances reconcile with financial information contained in reports from Treasury and other agencies.
5040		FM.115	FMS sends summarized repayment information to ED/CFO.
5050		FM.116	FMS sends drawdown information to ED/CFO for all aid programs.
5052		FM.117	FMS transmits payment requests to ED/CFO.

Requirements Number	Subsystem Name	Interface #	Descriptions
5060 5270		FM.118 FM.123	FMS receives: • Treasury trace numbers and payments rejects from ED/CFO • Transaction and balance information from ED/CFO.
5110 5120 5130		FM.119	FMS maintains a record of interface transactions sent to and received from: • SFA • ES/CFO • ED Budget
5250		FM.122	FMS aggregates student transaction information to the school and program award year level, and forward to ED/CFO and SFA.
5320 5322 5324		FM.124	FMS tracks debits and credits on: • The GA and Lender level for FFELP. • The student level for Direct Loans, loans assigned to ED for debt collection, and for Pell Grants. • The school level for Campus Based programs and for Direct Loans.
FS-03.01J	**Funds Management**	FM.140	FMS tracks SFA's budget authority and manages prior year's funds in the current year.
FS-03.02J		FM.141	FMS records SFA's budgetary resources and supports the establishment of budgetary limitations at each of the levels required within SFA.
FS-03.03J		FM.142	FMS records transactions affecting the resource usage accounts in the budgetary section of the U.S. Government Standard General Ledger (e.g., commitments, undelivered orders, expenditures, reimbursements earned). It also provides appropriate warnings and controls to ensure that budgetary limitations are not exceeded.
1300		FM.143	FMS maintains school disbursement ledgers to show a complete record of all disbursements to, and collections from, a school.
1602		FM.144	FMS maintains warehoused payment authorizations and, at the appropriate time, generate payment requests.
1618		FM.145	FMS verifies the availability of aid program funds when approving a payment request. Once the payment request has been approved, the available fund balance for that aid program will be reduced by the amount of the payment.

Requirements Number	Subsystem Name	Interface #	Descriptions
5000		FM.146	FMS receives allotment information from ED/CFO/Budget.
5010		FM.147	FMS maintains aid program allotment information.
5080		FM.148	FMS maintains budgetary account balances at the level of detail required to meet program-reporting requirements.
FS.03.04J		FM.149	FMS is sufficiently flexible to support changes in the way SFA is funded. Currently, the Access America project is evaluating process changes that may change the way funds are delivered to SFA.
FS.04.01J	**Payments Management**	FM.160	FMS process payee information needed to make payments with information needed for other purposes and in other systems.
FS.04.02J		FM.161	FMS recognizes and records payments due to another entity in the near term. It applies disbursements, adjustments, and cancellations to achieve an accurate daily net settlement.
5030		FM.162	FMS makes a payment that was warehoused, or records a payment made by another system. It also makes adjustments to existing payable transactions.
FS.04.03J		FM.163	FMS confirms that disbursements were made as anticipated and supports inquiries from vendors regarding payments and reporting requirements relating to the Payment Management.
1300		FM.164	FMS maintains school disbursement ledgers to show a complete record of all disbursements to, and collections from, a school.
5050		FM.116	FMS sends drawdown information to ED/CFO for all aid programs.
5070.03		FM.165	FMS processes payments for any costs incurred by schools, lenders, and guaranty agencies for which SFA will be reimbursed through a charge-back process.
5190		FM.166	FMS ensures the clerical accuracy of schedules of accounts payable. It performs an edit check of each payable transaction. In the event an “unreasonable” transaction is encountered, a report is printed to bring the transaction to the attention of SFA management.
5270		FM.123	FMS receives transaction and balance information from ED/CFO.

Requirements Number	Subsystem Name	Interface #	Descriptions
5290		FM.167	FMS reconciles transactions with the appropriate program level detail or general ledger at the appropriate level of detail for the respective program.
5300		FM.168	FMS allows expenditures to move between award years and programs.
1310	**Receipt Management**	FM.180	FMS records receivables in as they are recognized and produce bills for amounts due to SFA from students, schools, financial institutions and other organizations. It makes any necessary adjustments to receivable transactions.
1220		FM.181	FMS maintains information on entities owing the government (name, address, etc.); age receivables; makes efforts to collect amounts due including related interest, penalties, and administrative charges; liquidates receivables; records adjustments to receivables; maintains a proper allowance for uncollectible amounts; and records write-offs.
5200		FM.182	FMS records the receipt of funds either by currency (e.g., cash, electronic funds transfer) or checks and the deposit of such funds in accordance with Treasury and SFA regulations.
5140		FM.183	FMS ensures the clerical accuracy of records and supporting schedules of receivables and records of events giving rise to receivables. It performs edit check of each receivable transaction. In the event an "unreasonable" transaction is encountered, a report is printed to bring the transaction to the attention of SFA management.
5160		FM.184	FMS prepares invoices for any costs incurred by schools, lenders, and guaranty agencies for which SFA will be reimbursed through a charge-back process.
5230		FM.185	FMS receives and posts returned funds.
5240		FM.186	FMS sends returned fund information to ED/CFO
FS.06.01J	**Cost Management**	FM.200	FMS determines when the results of an event are to be included in financial statements and ensures that the effects of similar events and transactions are accounted for consistently within the Federal government.
FS.06.02J		FM.201	FMS provides for the collection of cost data at various levels. Costs may be accumulated by cost object, activity, process, SFA organization unit, aid program, loan type, school, and financial institution.

Requirements Number	Subsystem Name	Interface #	Descriptions
FS.06.03J		FM.202	FMS assigns accumulated costs to reporting periods and cost objects in accordance with SFFAS No. 4. A cost object is a function, organizational subdivision, contract, or other work unit for which cost data are desired and for which provision is made to accumulate and measure the cost of activities, products, jobs, capitalized projects, etc.
FS.06.04J		FM.203	FMS manages SFA use of revolving funds. These funds require separate legislation and have specific charters, which focuses on specific purposes.
5070.01		FM.204	FMS calculates any costs incurred by schools, lenders, and guaranty agencies for which SFA will be reimbursed through a charge-back process.
5070.02		FM.205	FMS generates a bill for any costs incurred by schools, lenders, and guaranty agencies for which SFA will be reimbursed through a charge-back process.
FS.07.01J	**Financial Management Reporting**	FM.220	FMS provides ready access to the different level of technical knowledge of systems and financial data comprised in the core financial management system.
FS.07.02J		FM.221	FMS provides complete, reliable, consistent, timely and useful financial management information on operations to enable central management agencies, individual operating agencies, divisions, bureaus and other subunits to carry out their fiduciary responsibilities; deter fraud, waste, and abuse of resources; and facilitate efficient and effective delivery of programs by relating financial consequences to program performance.
FS.07.04J		FM.222	FMS is capable of producing a complete transaction history of each loan in the SFA loan portfolio.
FS.07.05J		FM.223	FMS is capable of supporting the external reporting requirements of OMB and Treasury, including those associated with the FCRA of 1990 and the CFO Act of 1990.

Requirements Number	Subsystem Name	Interface #	Descriptions
FS.07.06J FS.07.07J		FM.224	FMS produces the following reports: • Interest calculation reports • Subsidy estimates • Budget reports • 224 • 133/132 • 2208 • Reports summarizing performance against select finance performance metrics • Financial statements for the SFA PBO
FS.07.08J FS.07.09J 1370		FM.226	FMS • Enables SFA employees to print financial reports remotely • Provides analysis tools to enable the development of customized reports • Specified reports that meet Federal account requirements and Federally mandated school reporting requirements from data in the transaction histories
FS.08.01J	**Loan Portfolio Management**	FM.240	FMS maintains adequate and up-to-date information on the status of the SFA loan portfolio to evaluate management and program effectiveness. It identifies Loans for Evaluation, processes Guaranteed Loan Status Reports from Lenders, and performs Compute Portfolio Performance Measures activities
FS.08.02J		FM.241	FMS determines how the SFA credit programs will be financed, that support Treasury Borrowing Calculations, subsidy estimates, subsidy Re-estimates, and analyze working capital needs.
FS.08.03J		FM.242	FMS facilitates the sale of loans within the SFA loan portfolio to non-federal entities with or without recourse. It prepares portfolio for sale or prepayment, conducts prepayment program, and executes portfolio sales.
FS.08.04J		FM.243	FMS tracks borrower, school, lender, guarantor and servicer information to manage a portfolio which includes Direct loans, Perkins loans (held by school), FFEL loans (held by lender) and defaulted loans (held by either guarantor or ED).
FS.08.05J		FM.244	FMS provides SFA management with a daily view of the total loan portfolio.
FS.08.06J		FM.245	FMS processes and tracks offsets from the Department of Treasury for defaulted loans. (IRS link)

Requirements Number	Subsystem Name	Interface #	Descriptions
FS.08.07J		FM.246	FMS provides the ongoing analysis of the loan portfolio's risk profile. SFA must be able to compute and maintain program performance information such as number and dollar value of loans made, average loan size, loans made by geographical region, number and amount of defaulted loans, number and amount of claims paid, and amount of loan write-offs. SFA must also be able to compute and maintain financial measures such as overall portfolio risk rate, average loan-to-value ratio, write-offs as a percentage of seriously delinquent acquired loans, loan loss rates, and recovery rates.
FS.09.01J	**Budget Analysis and Development**	260	FMS draws historical data from many different systems (payroll system, travel system, ED GAPS, etc.) and forecasts future operating cost requirements based on trends in selected cost drivers, such as the size of the loan portfolio, number of defaulted loans and application volume.
FS.09.02J		261	FMS is sufficiently flexible to support frequent changes in budget format and development methodology.
FS.09.03J		262	FMS provides preliminary budgets, which is reviewed by SFA's Technical Investment Review Board.

Customer Satisfaction and Employee Satisfaction Feedback Subsystems

1. **Customer Satisfaction Feedback Subsystem**—The Customer Satisfaction Feedback (Figure IV.C-9) subsystem provides support for a systematic series of activities to measure and report customer/partner service perceptions and outcomes. The subsystem gathers data for analysis and processing to identify critical customer trends, performance gaps and opportunity areas. It supports identifying customer/partner needs and satisfaction levels, and developing objectives and plans to support them. Mostly the decision-makers use this subsystem for taking responsive action to enhance customer satisfaction.

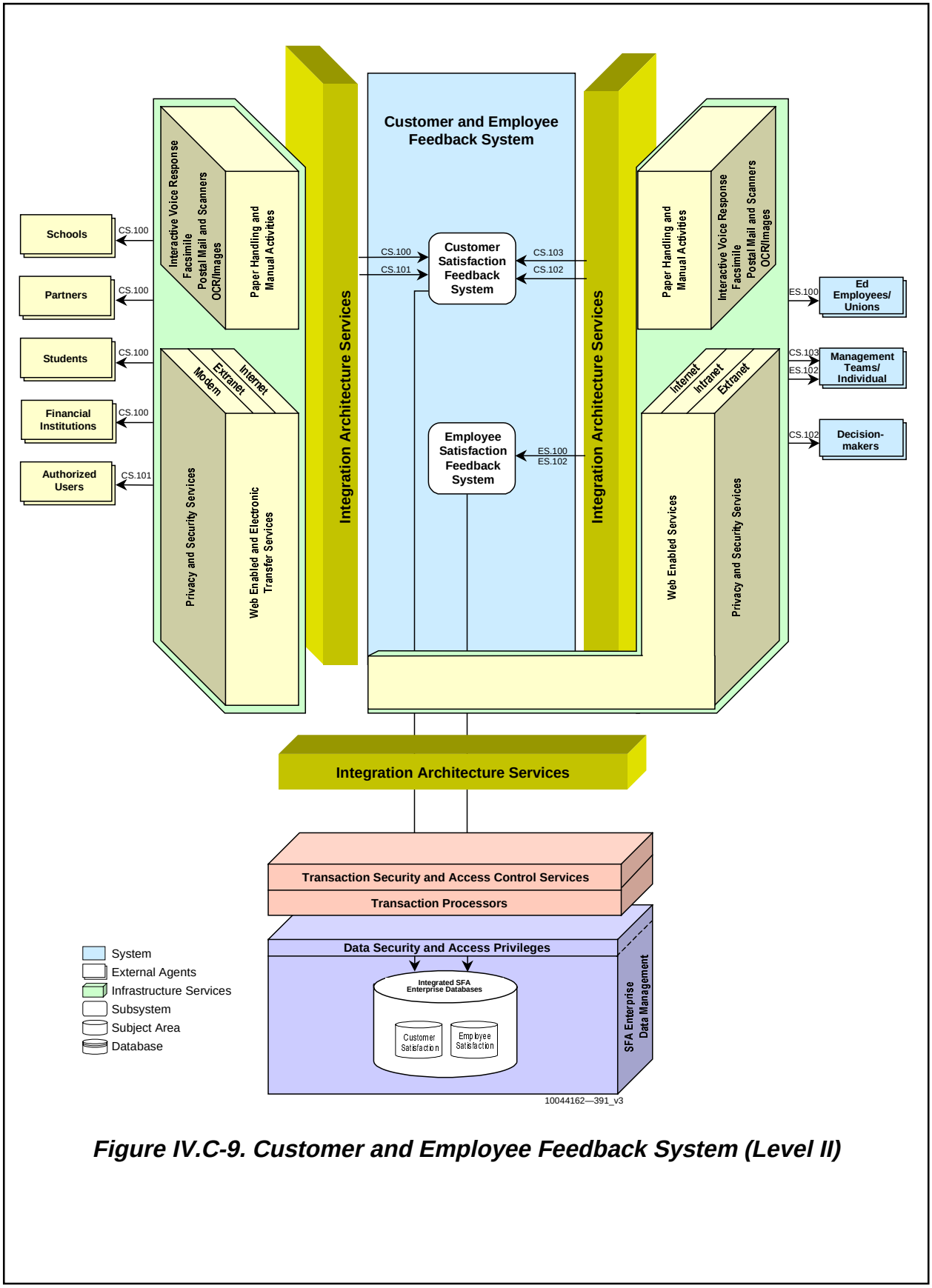

Figure IV.C-9. Customer and Employee Feedback System (Level II)

2. **Employee Satisfaction Feedback Subsystem**—The main function of this subsystem is to measure employee attainment of individual and corporate performance objectives. The subsystem gathers employee performance data and performs performance measurement analysis at the employee, division, or department level. It identifies critical employee programs and converts data from these programs into managerially significant information, which can then be used to identify gaps in program performance and to initiate corrective action. This information will also be used to address critical employee concerns and continually improve employee programs.

System Capabilities

The Customer Satisfaction Feedback subsystem provides the capabilities that include:

- Identifying information to be collected from target segments, designing initiatives and establishing metrics to measure success of those initiatives.
- Collecting customer satisfaction information and preferences by using common methods of collection including mail, telephone and in-person surveys, focus groups, conferences, information from contractors, mystery shopping, opinion polls, and the Web.
- Examining customer data to discover patterns and trends, gaps in performance and customer opportunity areas.
- Formulating options, preparing recommendations and developing plans to address customer satisfaction issues.
- Providing feedback to customers and the organization regarding how well SFA is achieving customer satisfaction performance goals. It develops a set of ad-hoc reports tailored to various customers and partners including: students, schools, financial partners, accrediting agencies, state licensing agencies, guarantee agencies, SFA management, employees and other officials.

The Employee Satisfaction Feedback subsystem provides the capabilities that include:

- Identifying employee needs, tracking initiatives to fill those needs and developing the metrics to measure success of those programs. It generates a list of individual and group/department employee satisfaction objectives. It identifies key labor and management relations' issues.
- Ongoing collection of employee satisfactions and preferences information through various feedback mechanisms, including the expanded Intranet, town meetings, formal surveys, performance reviews and exit interviews.
- Processing and synthesizing of employee satisfaction and preference information in order to identify meaningful trends and insights to inform agreements and decisions.

- Providing various options to improve initiative performance, and measuring the level of success of employee initiatives so as to determine the value of continuing or canceling different initiatives.
- Providing feedback and communicates decisions and actions based on employee satisfaction and preference analysis.

Enterprise Services

The Enterprise Services system captures information that is used to support the SFA infrastructure. It is composed of four subsystems: Human Resources; IT Services; Facilities; and Contracts and Acquisitions. These are described in more detail in System Capabilities below.

Depiction of the Enterprise Services subsystems distinguishes between data access/update to the integrated SFA enterprise database (which is business-related data) and process-unique data management that does not directly support the business and thus would not be part of the integrated database. Two examples of the latter type of data are the electronic tracking of human resources policies and procedures, and configuration management under IT Services, whereby the data is not business-related information but rather information used to manage the systems development lifecycle process itself.

System Interfaces

Requirements Number	Subsystem Name	Interface #	Descriptions
CS-02.01 CS-02.02 CS-02.04 CS-02.05 CS-06.03	**Customer Satisfaction Feedback Subsystem**	CS.100	The subsystem interfaces with Schools/Students and Financial Partners for the following: • Receive survey data via phone, Web etc. • Receiving best practices and benchmarking • Receiving statistics data viz. Complaints/given number of applications • Thanking respondents and participants for their input and survey participation • Generating Customer satisfaction reports for schools, students and financial partners.
CS-03.01		CS.101	The subsystem interfaces with authorized users for receiving/giving requests to access customer/partner data and analysis tools
CS-03.07		CS.102	The subsystem interfaces with Decision-Makers to deliver recommendations for consideration.

Requirements Number	Subsystem Name	Interface #	Descriptions
CS-06.01 CS-06.05		CS.103	SFA interfaces with Management teams/Individuals to: • Deliver recommendations at different levels. • Provide feedback loop to track and report success of decisions
ES-01.01 ES-01.10 ES-02.04 ES-02.06 ES-04.04 ES-05.02	**Employee Satisfaction Feedback Subsystem**	ES.100	The subsystem interfaces with ED for the following: • Receiving management intentions on how SFA employees will be treated. • Receiving employee satisfaction criteria levels. • Honoring and rewarding employees who contributed to increase employee satisfaction • Thanking and acknowledging employees contributing to surveys
ES-05.04 ES-05.06 ES-05.07		ES.102	The subsystem interfaces with the organization at all levels including managers and stakeholders: • Disseminating important employee info. • Providing interactive methods to share info among them • Providing tailored reports to stakeholders and process owners

Infrastructure Services

In order to achieve the services shown in Figure IV.C-1, High-Level TA, SFA has organized itself into the following subsystems:

- Human Resources management subsystem
- IT management subsystem
- Facility management subsystem
- Contracts and acquisition subsystem

The interfaces for these subsystems are illustrated in Figure IV.C-10.

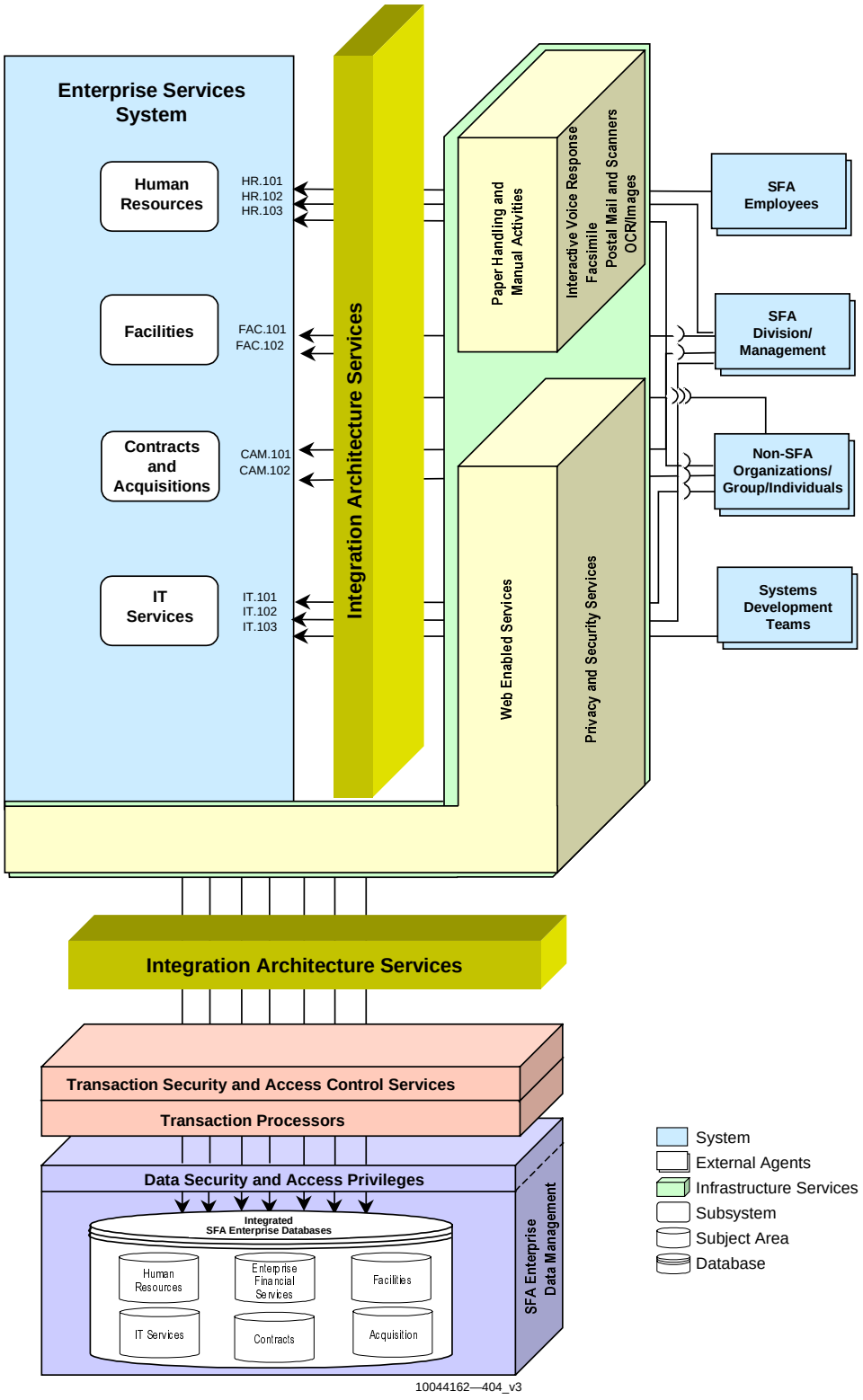

Figure IV.C-10. Enterprise Services System (Level II) (1 of 2)

HR.101	Employee requests for services/information (e.g., benefits requests) and employee information (e.g.,time reporting)
HR.102	Requests for action/information (e.g., recommendations for hire, workplace disputes) and information (e.g., employee evaluations)
FAC.101	Requests for actions/information (e.g., employee moves/security access) and information (e.g., lease-buy analysis)
HR.103	Requests for services/information (e.g., union grievances) and information (e.g., candidate resume/job applications)
CAM.101	Requests for information/services (e.g., investment requests, requests for contract modifications) and information (e.g., PBO objectives)
FAC.102	Information (e.g., government regulations/codes, offers to supply services)
CAM.102	Information/services (e.g., proposals, response to requests for information)
IT.101	IT trends and enabling technology, interface requirements
IT.102	Requests for services/information (e.g., requests for IT-related investment resources, requests for maintenance) and information (e.g., organizational priorities, service level agreements)
IT.103	Application processing and storage capacity requirements, notice of availability or configurable item, work products

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Figure IV.C-10. Enterprise Services System (Level II) (2 of 2)

System Capabilities

The Enterprise Services system capabilities include:

- Human Resources: this subsystem captures business data on SFA personnel including the hiring and promotion of employees; employee compensation and benefits; employee development (i.e., training and education); and employee/labor relations.
- *The business architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III.*
- IT Services: this subsystem captures information on IT investment requests, capacity and production planning, project costs and schedules, and contractor evaluations of service-level agreements.
- Facilities: this subsystem captures information on equipment needs and inventories, space usage at SFA facilities, employee access privileges to facilities, usage of telecommunications equipment, and maintenance workloads and schedules.
- Contracts and Acquisitions: this subsystem captures information on requests for investments, budgets, vendor contracts, and vendor invoices.

System Interfaces

The system interfaces will be updated in the next version of the Blueprint based on the business model described in Chapter III.

Requirements Number	Subsystem Name	Interface #	Descriptions
HR-01.18 HR-01.20 HR-01.21	Human Resources	HR.100	The Human Resources subsystem has the capability to develop job descriptions, including promotion criteria and schedules, minimum skill requirements, and minimum passing scores on equivalency tests.
HR-02.01 HR-02.03 HR-02.04 HR-02.05 HR-02.10 HR-02.13 HR-02.16 HR-02.17 HR-02.19	Human Resources	HR.101	The Human Resources subsystem supports the management of employee compensation as follows: • Aligning pay and job responsibilities • Developing performance-based rewards • Developing alternative compensation schemes • Disbursing employee compensation • Providing for EDI to employee accounts • Determining fixed/variable costs of human resources • Processes employee time reporting

Requirements Number	Subsystem Name	Interface #	Descriptions
HR-02.03 HR-02.04 HR-02.06 HR-02.07 HR-02.08 HR-02.10 HR-02.11 HR-02.14 HR-02.17	Human Resources	HR.102	The Human Resources subsystem supports the management of employee benefits for the following: • Calculates employee benefits • Computes payroll deductions • Provides online employee access to benefits where they can view benefit options and register for/change their benefit selections
HR-03.01 HR-03.08 HR-03.09 HR-03.10 HR-03.11 HR-03.12 HR-03.17	Human Resources	HR.103	The Human Resources subsystem supports the management of employee development as follows: • Establishes employee development plans • Captures information on development activities of an individual employee • Established department/group/project training needs • Develops and publishes curriculum and training plans
HR-04.01 HR-04.02 HR-04.03 HR-05.04 HR-05.15	Human Resources	HR.103	The Human Resources subsystem supports the management of employee/labor relations as follows: • Tracks and processes performance and conduct-based actions, including dispute resolution and appeals • Tracks and processes employee grievances • Evaluates bargaining unit status based on data in the payroll system
IT-01.03 IT-01.05 IT-01.06 IT-01.08 IT-02.04 IT-02.06 IT-04.01 IT-04.02 IT-04.03 IT-04.04 IT-04.05 IT-08.03	IT Services	IT.101	The IT Services subsystem supports IT budgeting and acquisition as follows: • Prioritizes/balances IT investment requests and budget allocations • Develops acquisition packages for systems and other IT contract needs • Recommends system purchases • Evaluates system effectiveness against service level agreements • Forecasts short and long-term transmission and storage capacity requirements
IT-06.05	IT Services	IT.102	The IT Services subsystem supports systems security and privacy by enforcing and prosecuting violations of security/clearances.

Requirements Number	Subsystem Name	Interface #	Descriptions
FM-01.01 FM-01.02 FM-01.03 FM-01.04 FM-01.05 FM-02.01 FM-02.06 FM-04.04 FM-05.02 FM-05.03 FM-05.04	Facilities	FAC.101	The Facilities subsystem supports the management of SFA assets (equipment and property) as follows: • Provides data for lease versus buy analyses • Submits purchase requisitions for equipment (including telecommunications equipment), property/space • Supports negotiations to purchase equipment and property/space • Provides automatic reordering of depleted stocks at a specified reorder point
FM-02.07 FM-03.03	Facilities	FAC.101	The Facilities subsystem tracks the location of employees and property, and coordinates the issuance of security/access cards and clearances.
FM-06.01 FM-06.02	Facilities	FAC.102	The Facilities subsystem schedules repairs and generates work orders for maintaining SFA property
CAM-01-03	Contracts and Acquisitions	CAM.101	The Contracts and Acquisitions subsystem supports SFA acquisition by providing for the analysis of proposed investments required for the statement of work and validating the budget required for the procurement.
CAM-03-05 CAM-03-08 CAM-03-10 CAM-04-01 CAM-04-04 CAM-04-05 CAM-04-06 CAM-04-09 CAM-04-10	Contracts and Acquisitions	CAM.102	The Contracts and Acquisitions subsystem supports SFA contracting as follows: • Supports the negotiation of contract terms and performance objectives • Records the award of a contract • Manages the contract, including updates and amendments • Allows for the monitoring of contract deliverables against performance objectives • Processes contractor invoices and payments to the contractor • Provides information to conduct investment/value reviews • Provides a means to close out a contract

D. SFA Target Technical Architecture

D.1 Overview

The main objective of this section is to describe the user interfaces, business process applications, and integrated databases that will be implemented in the SFA Modernization Blueprint program. The high-level target architecture was designed based on the architectures defined in Section IV-B (SFA Business Process Architecture) and Section IV-C (SFA Business Systems Architecture).

The target technical architecture is shown in Figure IV.D-1. This type of architecture is commonly referred to as a three-tiered architecture because it has three logical layers: interfaces, business process applications, and integrated databases. This three-tiered target architecture, combined with leading-edge technology, gives SFA the opportunity to equal the best in business enterprises in terms of agility, efficiency, and service.

The user interface tier, or the presentation logic to the user, is comprised of industry standard communications, and leading-edge data exchange protocols that are capable of tying together to link across SFA systems and to establish a single contact point in the Web-enabled environment. In this way, the "face" presented by SFA to the students, schools, and financial partners provides an appropriately tailored response whether the business channels use the Internet, telephone and fax, paper, or meet one on one with SFA personnel.

The middle tier is the business process applications layer. It represents the SFA business logic contained in business applications. In the target architecture, these applications are grouped into five systems: student services, school services, financial partner services, performance management, and enterprise services. Enterprise Application Integration (EAI) software that resides in the middle tier receives requests and then gathers the appropriate supporting data from the third tier, the integrated databases, processes it, and returns the results to the requester (also potentially stores the results back in the integrated databases tier). These EAI tools assist in allowing disparate systems within the SFA environment (newly developed business applications, legacy systems, and commercial off-the-shelf packages) to access shared libraries of logic and data by implementing business rules, performing integrity checks, and routing data to the appropriate business applications. Business process applications may be distributed over several machines to meet processing and fault-tolerance requirements.

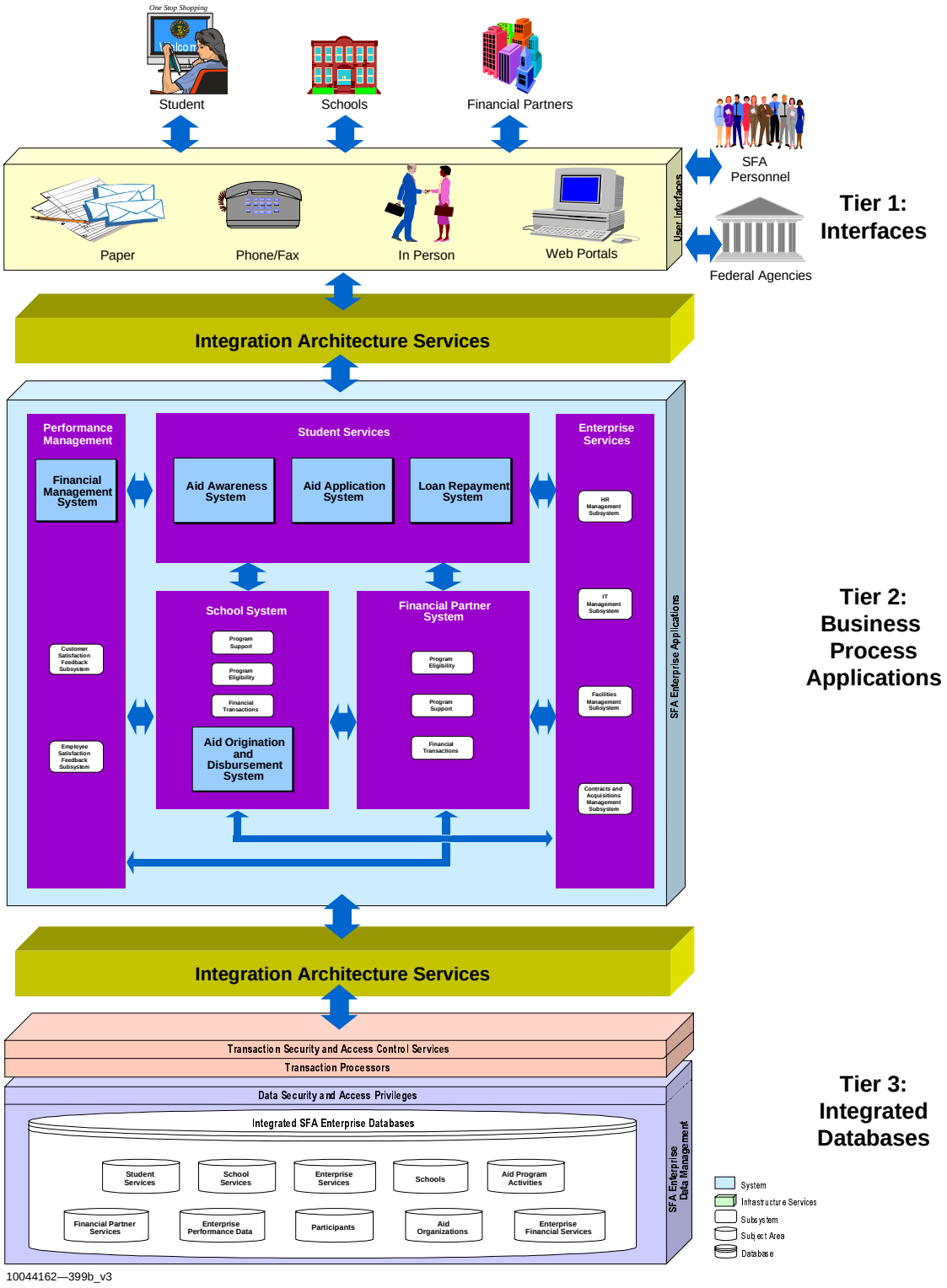


Figure IV.D-1. SFA Target Technical Architecture

The final tier, integrated databases, ensures consistency and integrity of information exchanged between SFA and its business channels. The integrated databases tier is comprised of 10 logical subject areas:

- Student Services
- School Services
- Financial Partner Services
- Enterprise Performance Data
- Enterprise Services
- Participants
- Schools
- Aid Organizations
- Aid Program Activities
- Enterprise Financial Services

These logical subject areas are in the integrated SFA enterprise databases that consolidate operational analysis data that was formerly maintained in stovepipe SFA application databases. In this way SFA business channels and SFA personnel work off a standard set of data and have a consistent view of information across the enterprise. Associated with these integrated databases is the provision of a decision support environment which allows SFA business channels and SFA personnel more rapid access to the information they need and richer analytical capabilities (e.g., adjudication, portfolio planning, rollups) in accordance with the law and associated legal codes.

D.2 Level I SFA Target Technical Architecture

The Level I target technical architecture introduces the target systems at a business channel level in the middle tier and the corresponding databases (presented in terms of logical subject areas defined in Section IV.B.2). All SFA business logic is contained in business systems that are identified for the five services—the three business channel services of Students, Schools, and Financial Partners, and the SFA supporting services of Performance Management and Enterprise services. All systems support the different interface media (paper, phone/fax, in person, and Web/Portals) for input and output purposes. The most relevant users are shown for each system though there may be interactions with the other external agents (e.g., Students are shown as the sole interface for the Student Services, though there may be flows from/to Schools etc.).

Student Services

The Student Services business channel has three major systems—the Aid Awareness System, the Aid Application System, and the Loan Repayment System, as shown Figure IV.D-2.

The Aid Awareness System deals mainly with increasing student awareness of different types of financial aid. It has various awareness programs targeted towards different population segments, so that financial aid can reach more participants. This system also monitors the effectiveness of awareness programs and implements changes when needed. The Aid Awareness Services subject area is the main data used for this system.

The Aid Application System mainly deals with collecting and organizing the participant's application information and determining his/her eligibility to participate in the aid program. It keeps track of the applicant's status and their acceptance/rejection of the aid packages. The Aid Applications subject area is the main data used for this system.

The Loan Repayment System is responsible for student exit counseling, loan consolidation and attempts to collect on defaulted loans. The system monitors student loans during the repayment period and identifies defaulted loans. It deals with collection agencies to collect defaulted loans. The Loan Repayments subject area is the main data used for this system.

School Services

The School Services business channel has two systems—the Aid Origination and Disbursement System and the School System as shown Figure IV.D-3.

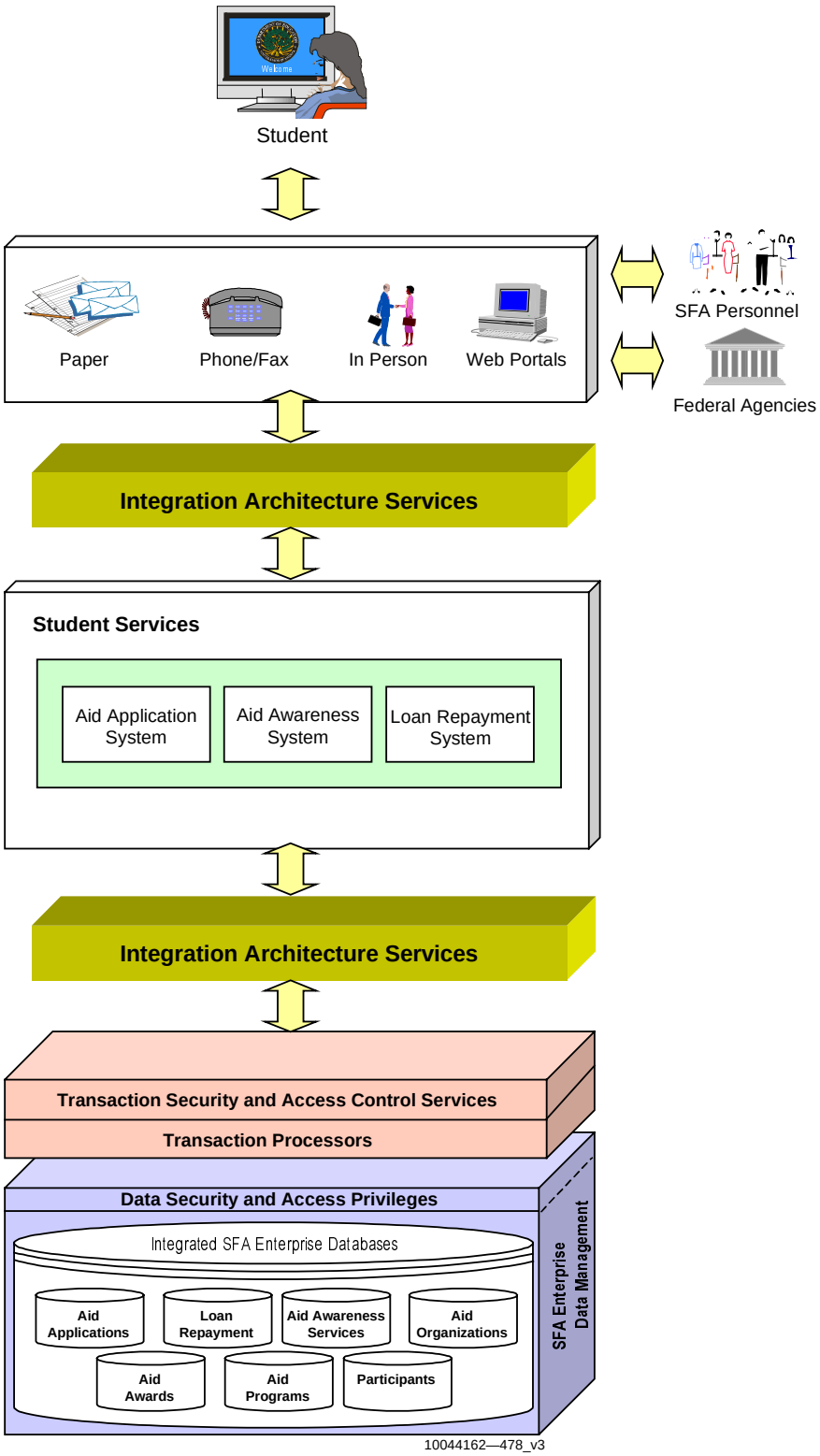


Figure IV.D-2. SFA Student Services – Target Architecture (Level I)

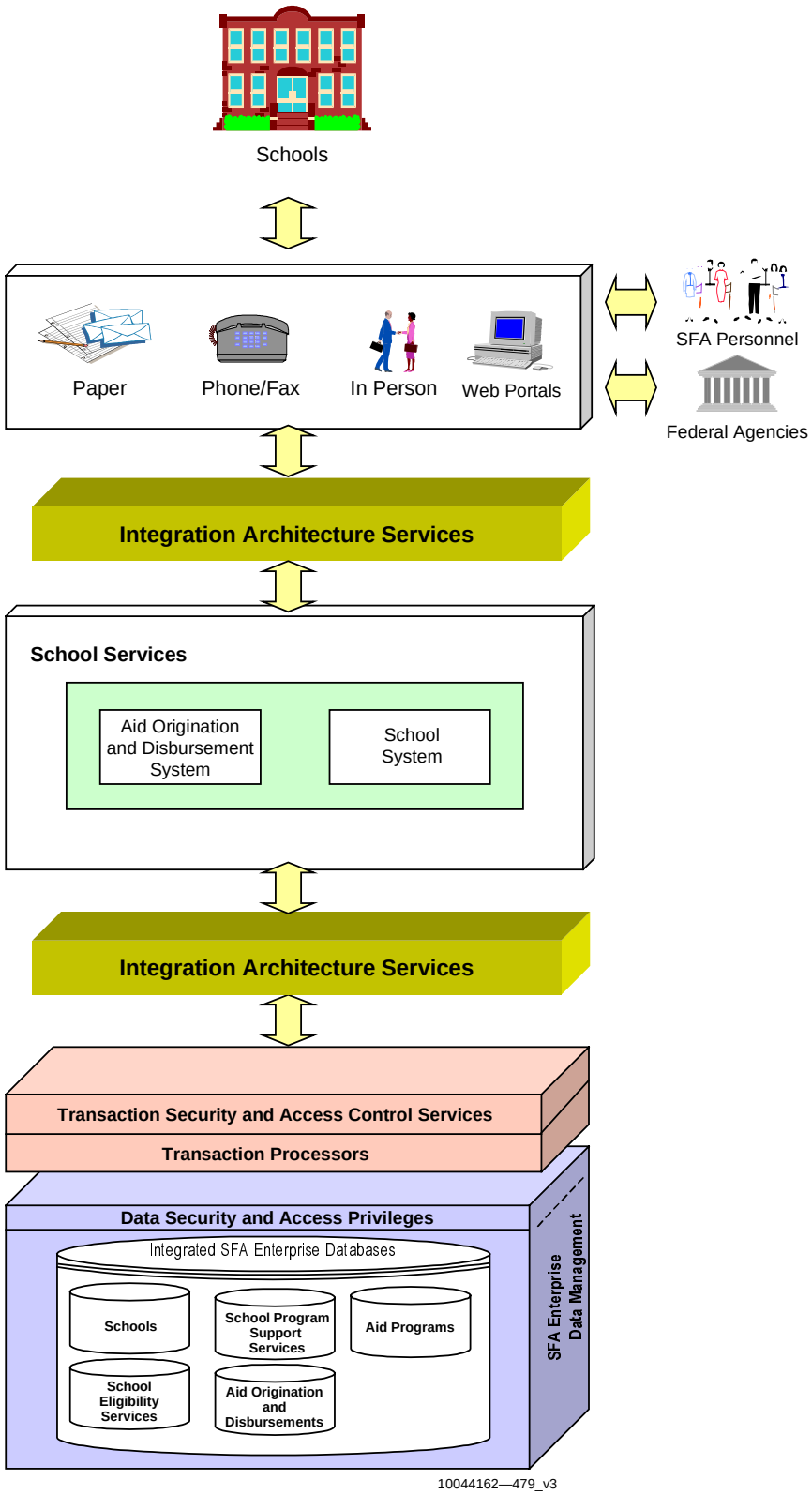


Figure IV.D-3. SFA School Services – Target Architecture (Level I)

The School System determines the eligibility of a school to participate in SFA aid programs by continuously monitoring the effectiveness and performance of the school. When a school does not meet the performance criteria to participate in the programs, it is either discontinued from the program or suitable action is taken. This system processes the financial transactions specific to the schools. It also provides training and education on the aid programs. The School Eligibility Services subject areas, the School Program Support Services subject area, and the Schools subject area are the main data used for this system.

The Aid Origination and Disbursements System processes grants and loans all the way from origination through disbursement to the participants. The system deals with authorization of payments to schools, disbursements, and financial transactions with participants and financial partners. Aid Origination and Disbursements subject area is the main data used for this system.

Financial Partner Services

This channel is configured into one system—the Financial Partner System as shown Figure IV.D-4. The Financial Partner System provides services to lenders and guaranty agencies in their delivery of aid to the students. This system takes care of program eligibility, training, education and technical assistance, and the financial transactions for financial partners. Financial Partner Services and Aid Organizations subject areas are the two main data used for this system.

Performance Management

The Performance Management business channel has two subsystems: Customer and Employee Feedback System and Financial Management System as shown in Figure IV.D-5. The Customer and Employee Feedback System will collect customer and employee satisfaction data, derive performance data from processes in other SFA systems, and provide tools to analyze and report on this data. The Financial Management System will be an integrated system that controls and accounts for all funds allocated to SFA; it will store budgetary data, manage funds, track invoices, manage the general ledger, and account for receipts and payments. The Enterprise Performance Data and Enterprise Financial Data subject areas are the main data used for these systems.

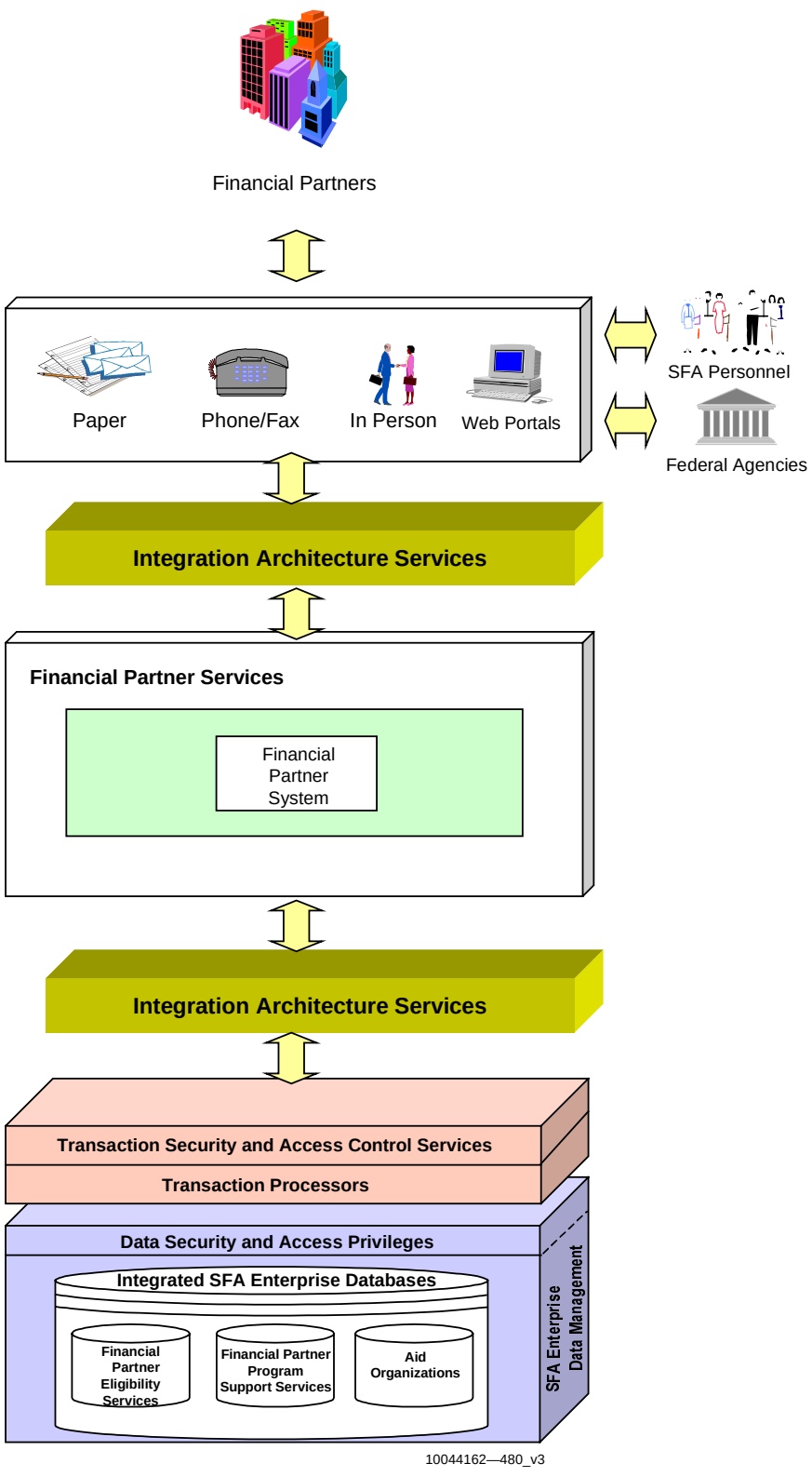


Figure IV.D-4. SFA Financial Partner Services – Target Architecture (Level I)

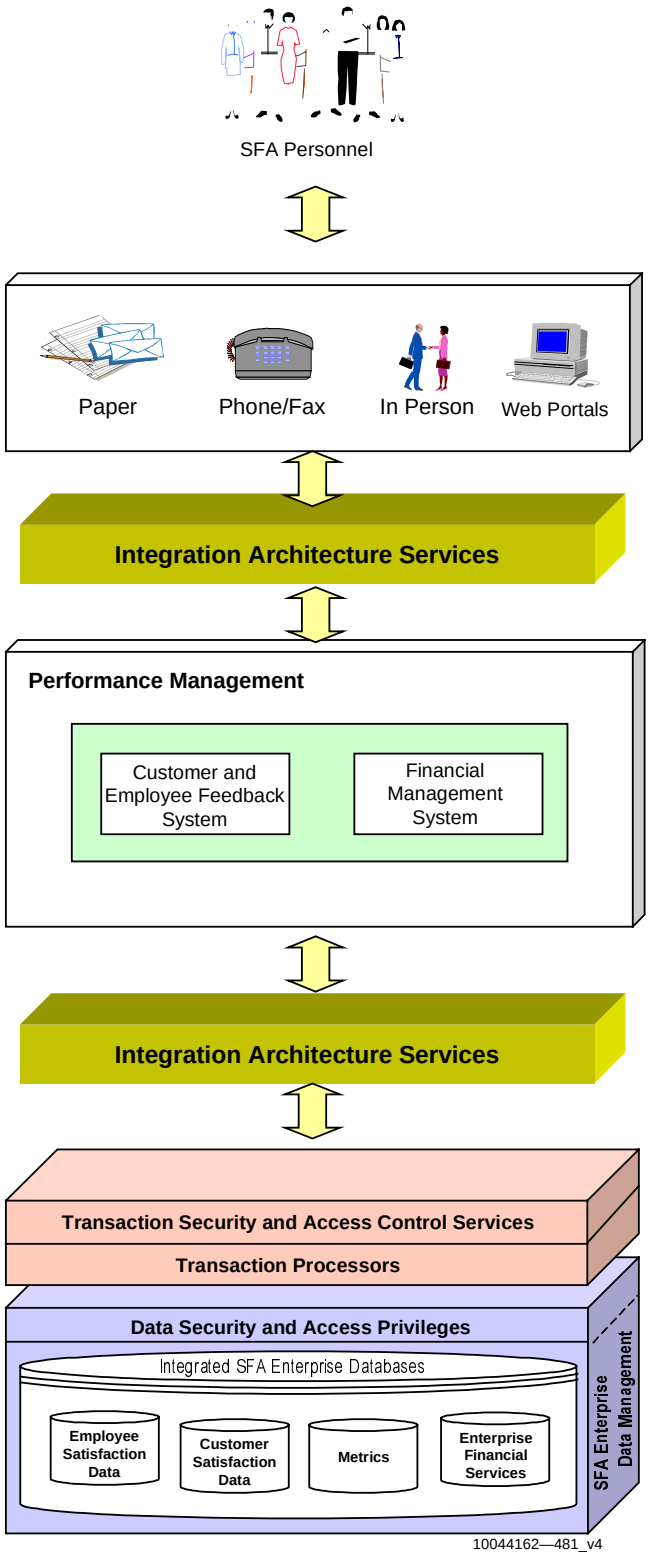


Figure IV.D-5. SFA Performance Management – Target Architecture (Level I)

Enterprise Services

The Enterprise Services channel, shown in Figure IV.D-6, has four systems: Human Resources Management, Information Technology Management, Facilities Management, and Contracts and Acquisitions. The Human Resources Management System will collect data about SFA human resources and provide tools to manage staffing, compensation, benefits, employee development, employee relations, labor relations, policy, organization, and employee performance.

The Information Technology Management System will collect data about SFA information technology assets and provide tools to manage IT investments, production and maintenance, systems development, capacity and performance tuning, systems availability and contingency planning, systems security and privacy, standards and methodology, system configurations, system interfaces, and quality assurance.

The Facilities Management System will collect data about SFA facilities and provide tools to manage facility equipment, space plans, safety and security, telecommunications, assets and inventory, maintenance, and business services.

The Contracts and Acquisitions System will collect data about contracts and acquisitions and provide tools to manage need-based planning, RFP creation and issue, source selection and evaluation, contacts, and policy. The Enterprise Services subject area is the main data resource for these systems.

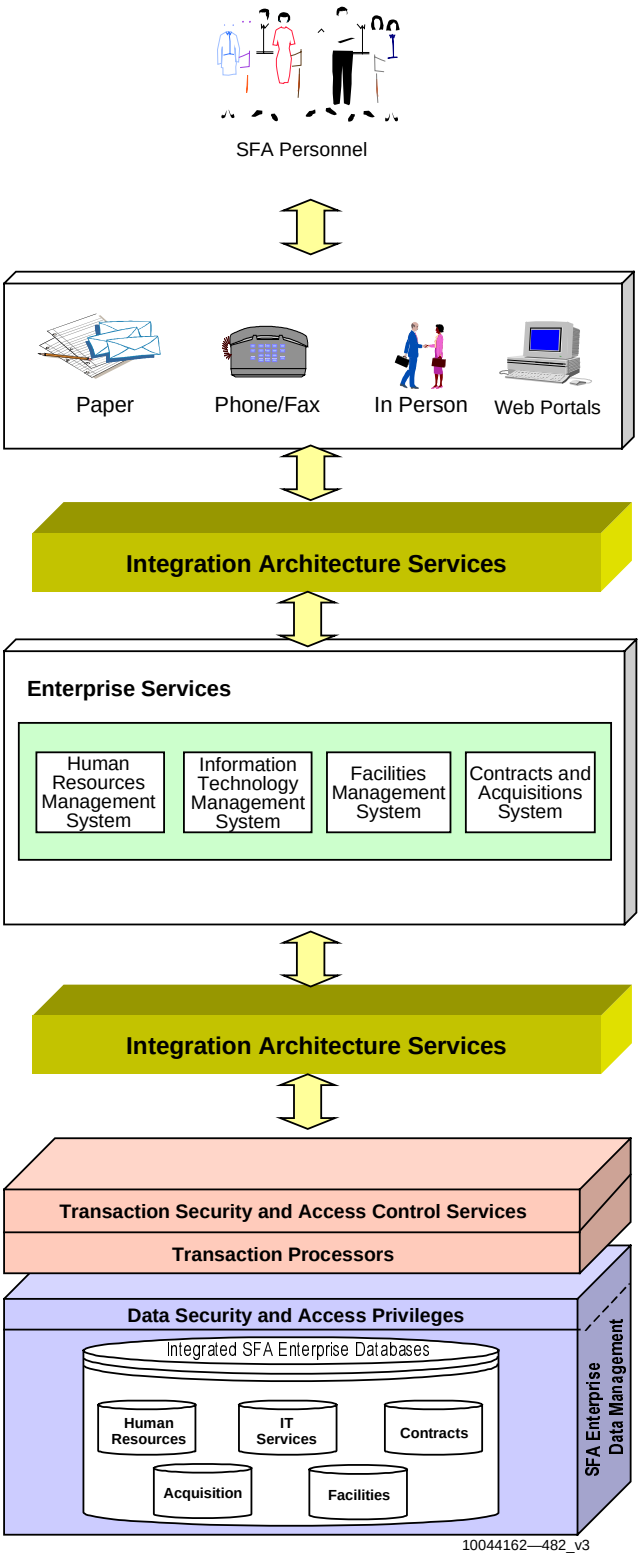


Figure IV.D-6. SFA Enterprise Services – Target Architecture (Level I)

D.3 Level II Target Technical Architecture

D.3.1 Overview

The main objective of the Level II architecture is to bring the Level I target architecture to the next lower level of detail by introducing more specific technical components to each tier. As such, the terminology used to describe each tier in this section to describe the Level II architecture is oriented towards a more technical audience and is presented using terminology that is prevalent in the industry.

3-Tier Architecture

The Level II target architecture is based on an n-tier (3-tier) logical architecture in a distributed processing environment. In this environment the external interfaces, application, and integrated databases services are designed as separate components that can be delivered on different platforms.

Because multi-tier platforms are highly cohesive and loosely coupled, they can be delivered across multiple physical tiers based on the available infrastructure, performance, requirements, and standards. Most multi-tier applications distribute user-related I/O logic to the client platform, and most or all of the data-related I/O logic to server resources. However, application and integrated databases logic may be distributed in any number of ways depending upon the availability of specialized servers and on other infrastructure considerations.

In the following table the advantages and disadvantages to a 3-tier architecture are given.

Advantages	Disadvantages
• Enhances scalability and flexibility • Provides expanded levels of service • Easier to develop and support complex applications • Requires a less complex client • Easier to migrate existing multiple heterogenous data sources • Is the current industry direction for enterprise applications	• Built on emerging technology • Normally involves higher levels of integration and data distribution

The 3-Tier architecture is based upon DCE (Distributed Computing Environment) and COE (Common Operating Environment). COE is the basis of how and where data is developed and maintained and DCE is an industry-standard, vendor-neutral set of distributed computing technologies. It provides security services to protect and control access to data, name services that make it easy to find distributed resources, and a highly scalable model for organizing widely scattered users, services, and data. DCE

runs on all major computing platforms and is designed to support distributed applications in heterogeneous hardware and software environments.

The process types associated with the target 3-Tier architecture are batch, online inquiry, and online updates.

- **Batch—**The user has no immediate capability to change system data. This model allows for batch file updating, as well as batch data entry, validation, and collection. Data is processed at scheduled intervals. On-line inquiry capabilities are not available.
- **Online Inquiry—**The user has no immediate capability to change system data. This model allows for batch file updating and online data entry and collection with delayed batch file updating. Transactions are entered and transferred to either a tape or disk file and later, the transactions are edited and stored in a posting file for subsequent batch file update of system data.
- **Online Updates—**The user has the capability to immediately change system data. This model allows online inquiry, data entry, and file updating. The user directly updates the computer files by entering one transaction at a time. In such a system, there may not be any batch controls.

Tier-1

Tier 1 is the external interface services layer of a 3-Tier architecture that provides the mechanism through which users interact with a system. External interfaces include screen generation, window management, and online help. It is the primary interface to the SFA Title IV systems via Web servers and Web Portal software using Web-based technology.

There are three WAN technologies that are supported in this architecture:

- Internet—The means of access and entry is to be used primarily by the Student community and the Department of Education Staff to gain entry into the broad provisions of Education data availability. These individuals will be accessing Education data in read-only mode and, since using the Web are not necessarily known to the Department.
- Intranet—This means of access and entry is to be used primarily by Department of Education Staff and designated Contractor personnel. The Windows NT local area network (LAN) is the primary environment to be used. These individuals will be known to the Department by virtue of being provided with user identification and the associated profiles.
- Extranet—The means of access and entry used by the “Trading Partners” of the Department. This community includes Banks, Lenders, Other Government Agencies, and Schools. The effected community most typically uses a T-1 line to provide relatively large quantities of data through a wide area network (WAN).

The main technologies supported in this environment are the World Wide Web, XML, JAVA, Enterprise Application Integration (EAI), and Portals.

- XML—'Extensible Markup Language' is not a fixed, single, predefined markup language (like HTML) but is a metalanguage (a language for describing other languages) which lets you design your own markup.
- JAVA—A programming language platform which is the environment for enterprises aiming to build and install Web-centric software applications that can run on a variety of computers, servers and other computing devices. JAVA provides the means for scalability and portability that is essential to the target architecture development.
- Enterprise Application Integration (EAI)—The set of technology services that enables the integration of disparate systems processes and data to support end-to-end business processes. EAI tools provide these services through business process management; reusable, non-invasive application adapters; conversion of data and message content between heterogeneous systems and data sources; and messaging communication models. EAI tools provide the services of an Integration Architecture, thus allowing disparate systems (newly developed applications, legacy systems, and commercial off-the-shelf packages) to leverage shared libraries of logic and data by implementing the business rules, integrity checks, and sequence of steps associated with a business function as a service.
- Portals—Are systems that enable companies to provide access to internally and externally stored information, and offers SFA users within and external to the enterprise a single window to personalized information needed to make informed business decisions.

Tier-2

Tier 2 is the application services layer (equivalent to Level I business process applications) of a 3-Tier architecture that provides a mechanism through which business logic is implemented. Application services govern business functions and processes performed by an application. These services are typically invoked via the presentation services when a user issues a request or by other business services. Application services may be computationally significant and may include transaction processing, edit and validation, message queuing, data typing and conversion, and process management.

The use of integration architecture services and mainframe technologies like parallel processing (a multi-site strategy for application availability and disaster recovery) will be used to provide access to legacy databases.

Tier-3

Tier 3 is the integrated databases services layer that provides the mechanisms through which data is accessed and managed (created, updated, read, and deleted). Integrated databases services include database management, file management, and related

services. Integrated database technology using Integration Architecture Services (IAS) will be utilized to access legacy databases and eventually all data will be moved to Enterprise databases.

D.3.2 Student Services

Aid Awareness

The target technical architecture for student services—Aid Awareness Subsystem (Level II) is shown in Figure IV.D-7. The main function supported is Monitor Awareness and Effectiveness, which provides and collects data on each Aid Awareness program and distribution mechanisms.

The primary interfaces to SFA Aid Awareness are via Web server using a Web browser. Other interface mechanisms include e-mail, fax, and mail that are processed by the Call Center (customer services). An Interactive Voice Response (IVR) capability provides telephone access to the Call Center as well.

User access includes the following:

- Interactive Voice Response Unit (IVRU)—The IVRU is designed to either make use of the DTMF or Touch Tone signals from the Public Switch Telephone Network (PSTN) telephone set to accept and input information into a customer application for user profile data.
- Web Server—Provides student and parent information and guidance to assist in the postsecondary school planning and decision making process via the Web browser.
  - Information on lender and school performance
  - Facilities access to other non-SFA resources via Internet hyperlinks
- Mail Processing Center—Consolidated SFA mail processing facility for handling SFA related mail.
- Call Center—Provides customer service to assist in school planning and decision making process.

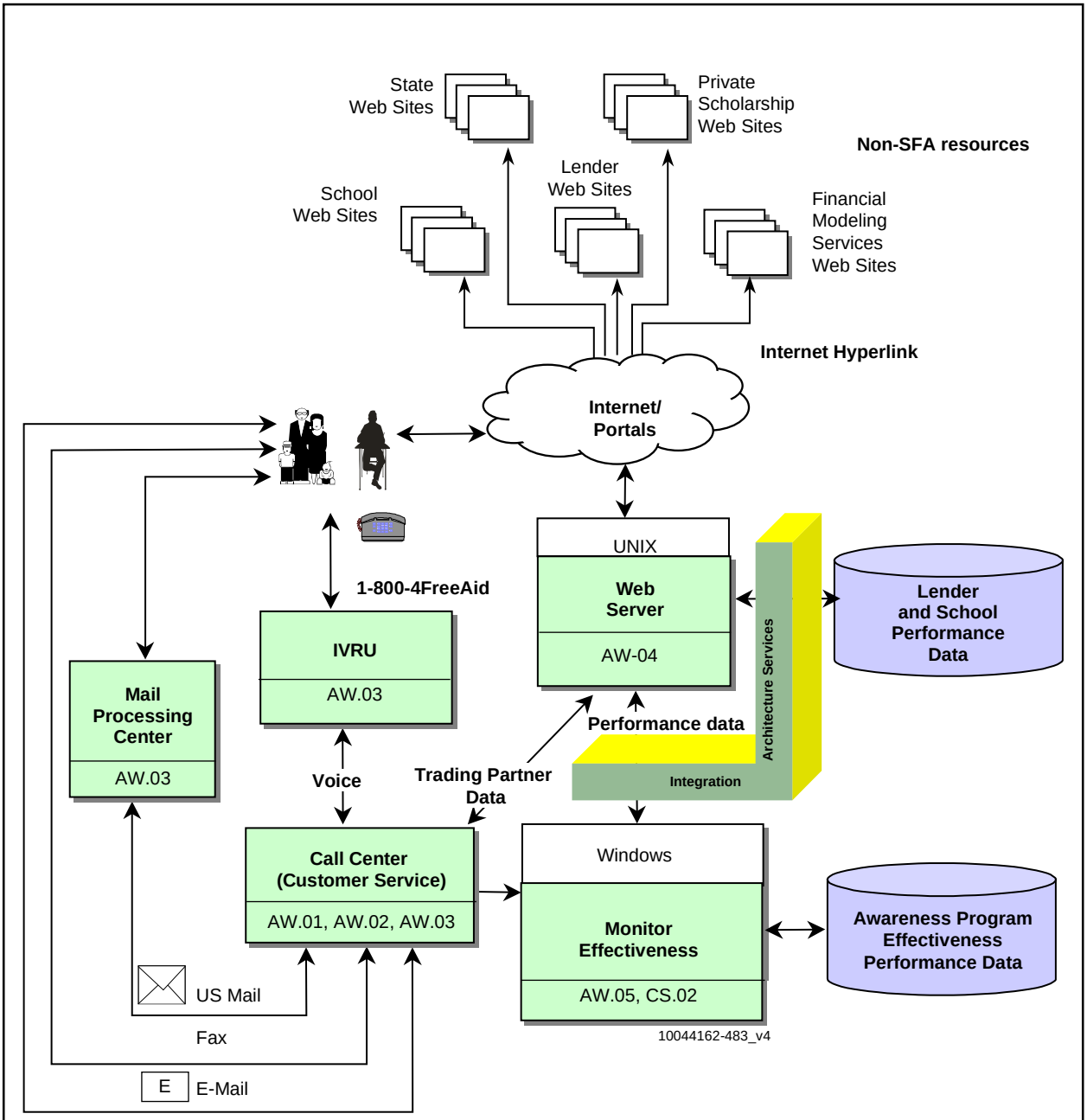


Figure IV.D-7. Target Technical Architecture for Student Services – Aid Awareness (Level II)

Application Services

The Web server and Portal application provide parents and student information on Lender and School performance data. Also, Internet hyperlinks are included to provide additional sources of information from public Web sites including

- State Web sites
- School Web sites
- Lender Web sites
- Private scholarship Web sites
- Financial modeling services Web sites

Database Services

The database server provides and collects the following information:

- Lender and school performance data
- Awareness program effectiveness performance data

Aid Applications

The target technical architecture for Student Services—Aid Application Subsystem (Level II) is shown in Figure IV.D-8.

The primary interfaces for students are via SFA Web server and Portal application using a Web browser, e-mail, fax, or paper. Hard copy applications are scanned into an image file and then entered into the aid application database for aid processing.

Financial Partners and Schools interface to student aid information is available online and batch by Portal Applications, FTP, or e-mail via the Internet. For Financial Partners and Schools that require high data performance, the interface will be via the SFA Extranet interfaces using Web browsers, FTP, or e-mail.

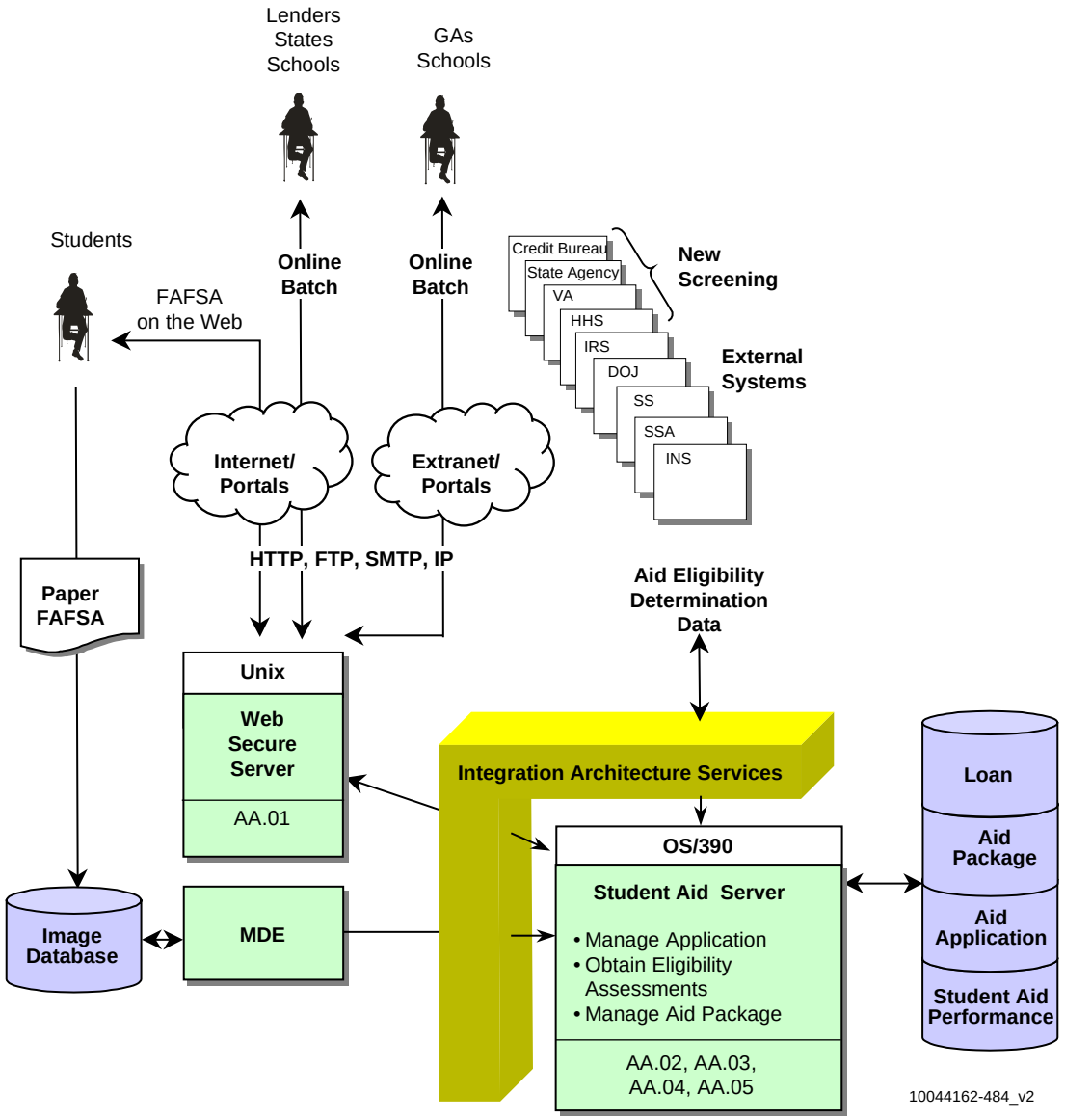


Figure IV.D-8. Target Technical Architecture for Student Services – Aid Application (Level II)

External interfaces to obtain eligibility assessment information includes the following sources, acceptable media, and interface standard:

Source	Acceptable Media	Interface Standard
Immigration and Naturalization Service (INS)	Electronic (current)	Proprietary
Credit Bureau	Electronic/Tape (current)	Proprietary
Social Security Administration (SSA)	Electronic (current)/Tape	FTP, Proprietary
Department of Justice (DOJ)	Electronic/Diskette (current)	FTP
Guaranty Agency (GA)	Electronic	SMTP (e-mail)
Health and Human Services (HHS)	Electronic	FTP, SMTP (e-mail)
Department of Veterans (VA)	Electronic	FTP, SMTP (e-mail)
Internal Revenue Service (IRS)	Electronic	Proprietary
State Agency (SA)	Electronic	FTP, SMTP (e-mail)
Selective Service (SS)	Electronic (current)	HTTP (Internet), Proprietary
Schools	Electronic	FTP, SMTP (e-mail), IP, HTTP (Internet)
Lenders	Electronic	FTP, SMTP (e-mail), IP, HTTP (Internet)
States	Electronic	FTP, SMTP (e-mail), IP, HTTP (Internet)

Application Services

The major features of the Aid Application Subsystem are the following:

- Manage aid applications and renewals entered and modified by Web browsers
- Obtain participant eligibility assessments to include new screening sources:
  - Credit Bureau
  - State agency
  - VA
  - HHS
- Provide participant aid history information to schools and students via Web browsers
- Manage aid package

The student aid server will provide a consolidated view for students and SFA partners to SFA financial aid information via Portal applications using Web browsers.

The Web secure server provides customers and SFA staff the ability to enter, view, and modify their aid application form by a Portal application via the Intranet. SFA

customers will be able to authenticate the SFA Web server before transmitting data to SFA for processing.

For the student interface the Web secure server will provide access control via PIN and user ID. Also, all data between the student and SFA are encrypted using an SSL protocol that is provided in the Web server.

For schools, Financial Partners, and state interfaces the Web secure server will provide access control and role authentication via user IDs, school ID, and password. Also, all data between schools, lenders, and state organizations and SFA are encrypted using an SSL protocol that is provided in the Web server.

Database Services

The database server provides and collects access information that includes

- Loan and grant data
- Aid package data
- Aid application data
- Student aid performance data

Loan Repayments

The target technical architecture for student services—Loan Repayments Subsystem (Level II) is shown in Figure IV.D-9.

The primary interfaces to SFA Loan Repayment are via SFA Web server using a Web browser, e-mail, fax, or paper. Fax or paper will be processed through the Mail Processing Center.

Financial partners, other government agencies, credit bureaus, collection agencies, etc., interface to student loan information (online and batch) using the Portal applications, FTP, or e-mail via the Internet. For those that require high volume data traffic, the interface will be via the SFA Extranet.

SFA staff will have online information available via the Internet using Web browsers or FTP or e-mail.

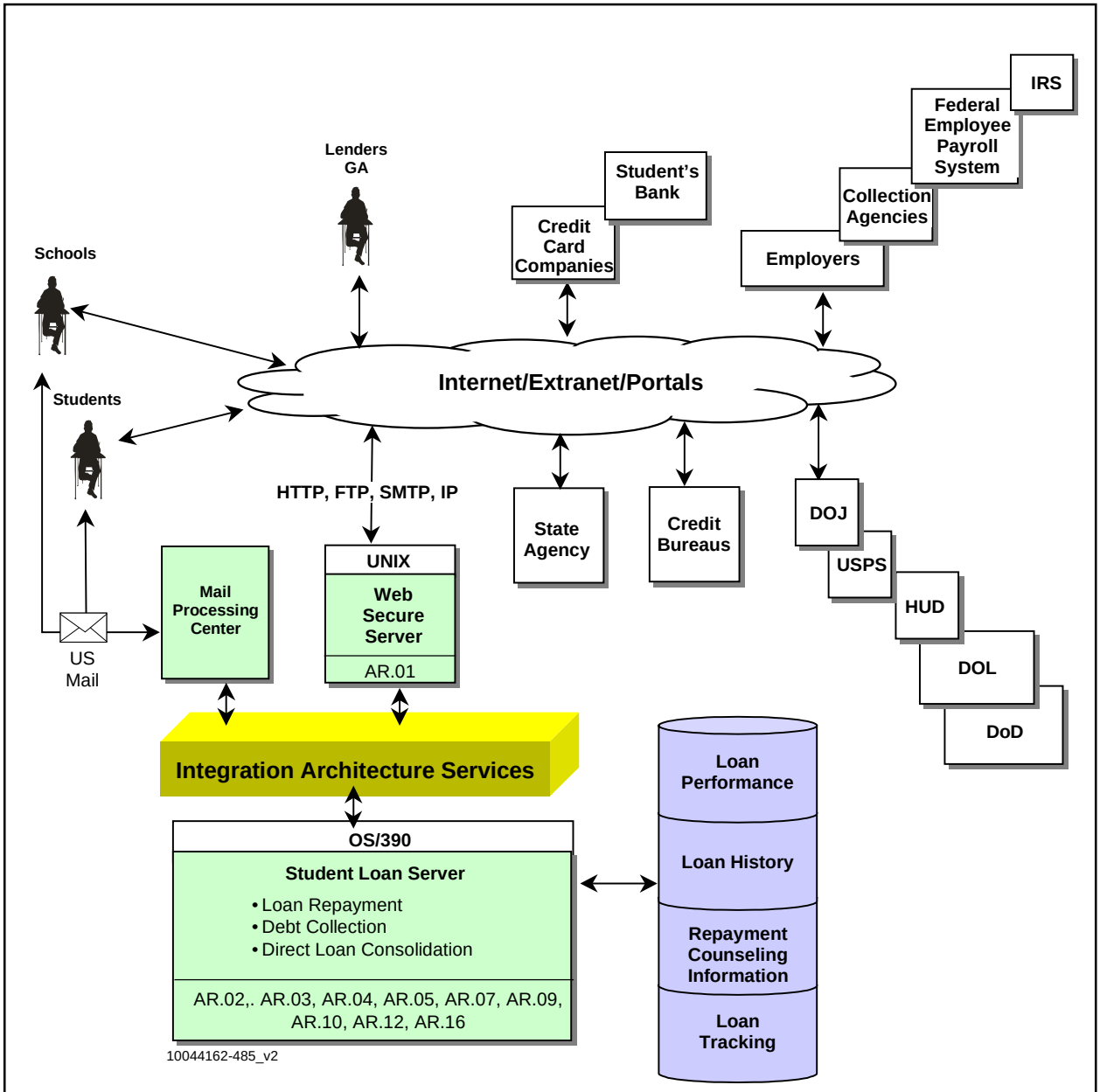


Figure IV.D-9. Target Technical Architecture for Student Services – Loan Repayments (Level II)

External interfaces to obtain eligibility assessment information includes the following sources, acceptable media, and interface standard:

Source	Acceptable Media	Interface Standard
Collection Agency	Electronic, Paper	FTP, Proprietary
Housing and Urban Development (HUD)	Electronic	Proprietary
Guaranty Agency (GA)	Electronic, Paper	FTP, fax
Lender	Electronic, Paper	HTTP (Internet), FTP, SMTP (e-mail), fax
School	Electronic, Paper	FTP, fax, HTTP (Internet), SMTP (e-mail)
Credit Bureau	Electronic, Paper	FTP, Proprietary
Department of Defense (DOD)	Electronic	FTP, Proprietary
Internal Revenue Service (IRS)	Electronic	FTP, SMTP (e-mail), Proprietary
U.S. Postal Service (USPS)	Electronic	FTP, Proprietary
State Agency	Electronic	FTP, Proprietary
Employers	Electronic, Paper	SMTP (e-mail)
Department of Justice (DOJ)	Electronic, Paper	FTP, fax, SMTP (e-mail)
Department of Labor (DOL)	Electronic	
Credit Card Companies	Electronic, Paper	FTP, Proprietary
Student Banks	Electronic	

Application Services

The major features are the following:

- Offers counseling information via Web browsers to borrowers who have entered into repayment
- Loan repayment provides students with different methods through which loans can be paid
- Debt collection
- Direct loan consolidation

The Web server and Portal application provide an interface via Web browser to SFA student loan repayment server.

Database Services

The database server provides access information that includes

- Loan repayment performance data
- Loan and grant history data
- Repayment counseling information
- Loan tracking data

D.3.3 School/Financial Partner Services

Program Eligibility

The target technical architecture for School/Financial Partner Services—Program Eligibility (Level II) is shown in Figure IV.D-10. The architecture includes both school and Financial Partner eligibility.

Input to the Program Eligibility server for both lenders and schools is achieved either by manually submitting paperwork or by Web/Portal access.

Application Services

The program eligibility server processes requests by accessing information from a number of databases. The server applications are used to determine school and financial partner eligibility and to record actions taken on Financial Partners or schools that are not performing.

Database Services

In order to process a request the server will make use of some subset of the databases mentioned below:

- School Performance
- Financial Partner Performance
- School Profile
- Financial Partner Profile
- Eligibility Database

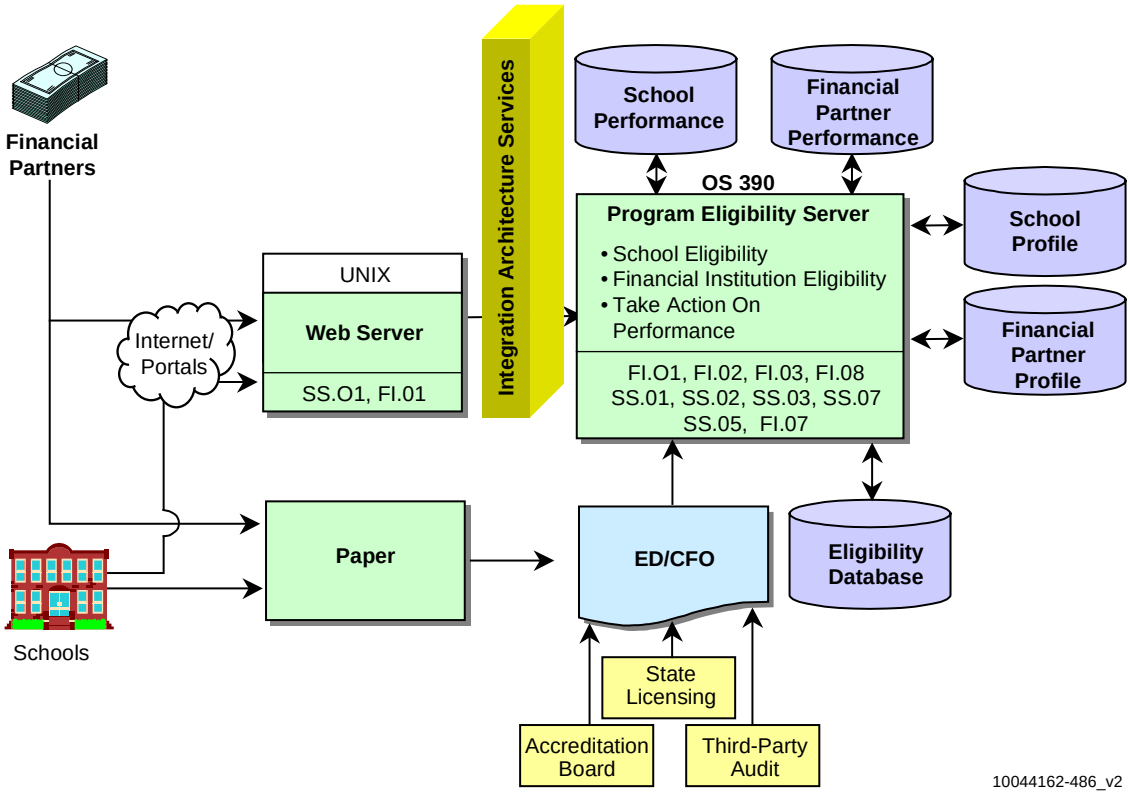


Figure IV.D-10. Target Technical Architecture for School/Financial Partner Services – Program Eligibility (Level II)

Program Support

The target technical architecture for School Services—Program Support (SS.04, FI.04) is shown in Figure IV.D-11.

The primary interfaces to the SFA databases for program support are via:

- Automated Call Director—The Department will establish a '1-800' telephone number using Interactive Voice Recognition (IVR) technology which will reduce the reliance on maintaining additional staff whose function is to answer frequent and redundant requests for establish and constructed information. By providing the Caller with a menu list of options, they can be directed to the material most appropriate to their needs.
- Mail Processing Center—Once the request for material is received by the Department, the material is packaged into the format requested by the organization, either paper hardcopy and/or CD-ROM, and sent via the US Postal Service.

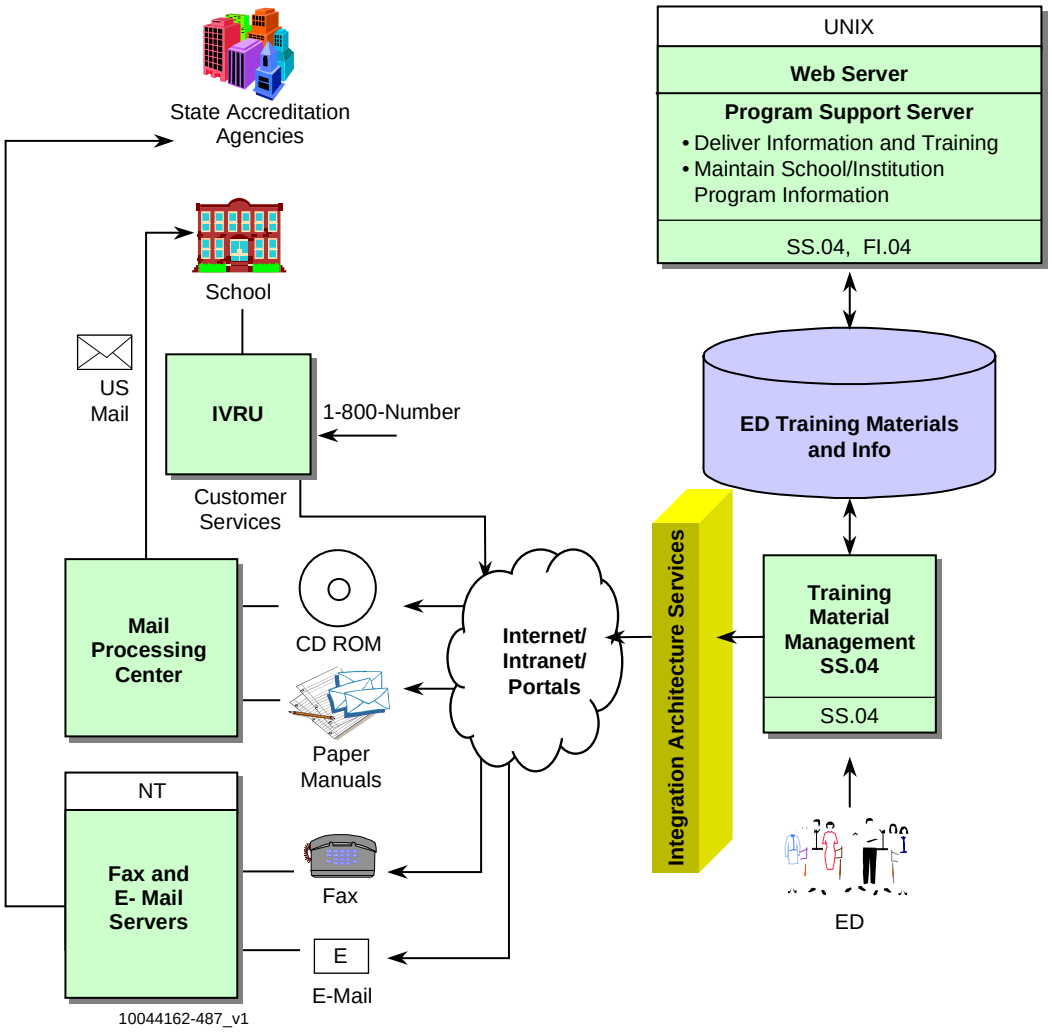


Figure IV.D-11. Target Technical Architecture for School/Financial Partner Services – Program Support (Level II)

- Fax and e-mail Servers—These are maintained by the Department so as to provide the requesting user organization with either a fax or e-mail response to their information needs.

Application Services

The Department of Education will develop and maintain a repository of information pertinent to the needs of schools both foreign and domestic, as well as authorized state agencies. This information is concerned primarily with educating and informing financial aid professionals of the resources available from the SFA. Technical training

material will be provided such that authorized organizations may draw material that will enable them to use template curricula as well as train-the-trainer material.

Technical assistance is also supported with information and training related to Title IV financial aid policy and operational issues.

Authorized users may be permitted to gain access to the Education training material and information developed and maintained by the Department.

Database Services

The database server provides access to information for ED training materials.

Financial Transactions

The SFA School/Financial Partner Services—Financial Transactions Subsystem functions are shown in Figure IV.D-12. The Financial Transactions Subsystem coordinates execution of financial activities that are conducted at the school and Financial Institutions level.

The interfaces to the SFA School/Financial Partner Services—Financial Transactions Subsystem are the following:

- Schools
- U.S. Treasury
- Financial Management System (FMS)
- Lenders
- GAs

Application Services

The SFA School/Financial Partner Services—Financial Transactions Subsystem supports the following:

- Allocate funds (campus-based) and allowances (Pell and Campus-Based)
- Manage authorization (Pell)
- Execute financial adjustments
- Make payments to Financial Partners
- Manage state LEAPP authorization

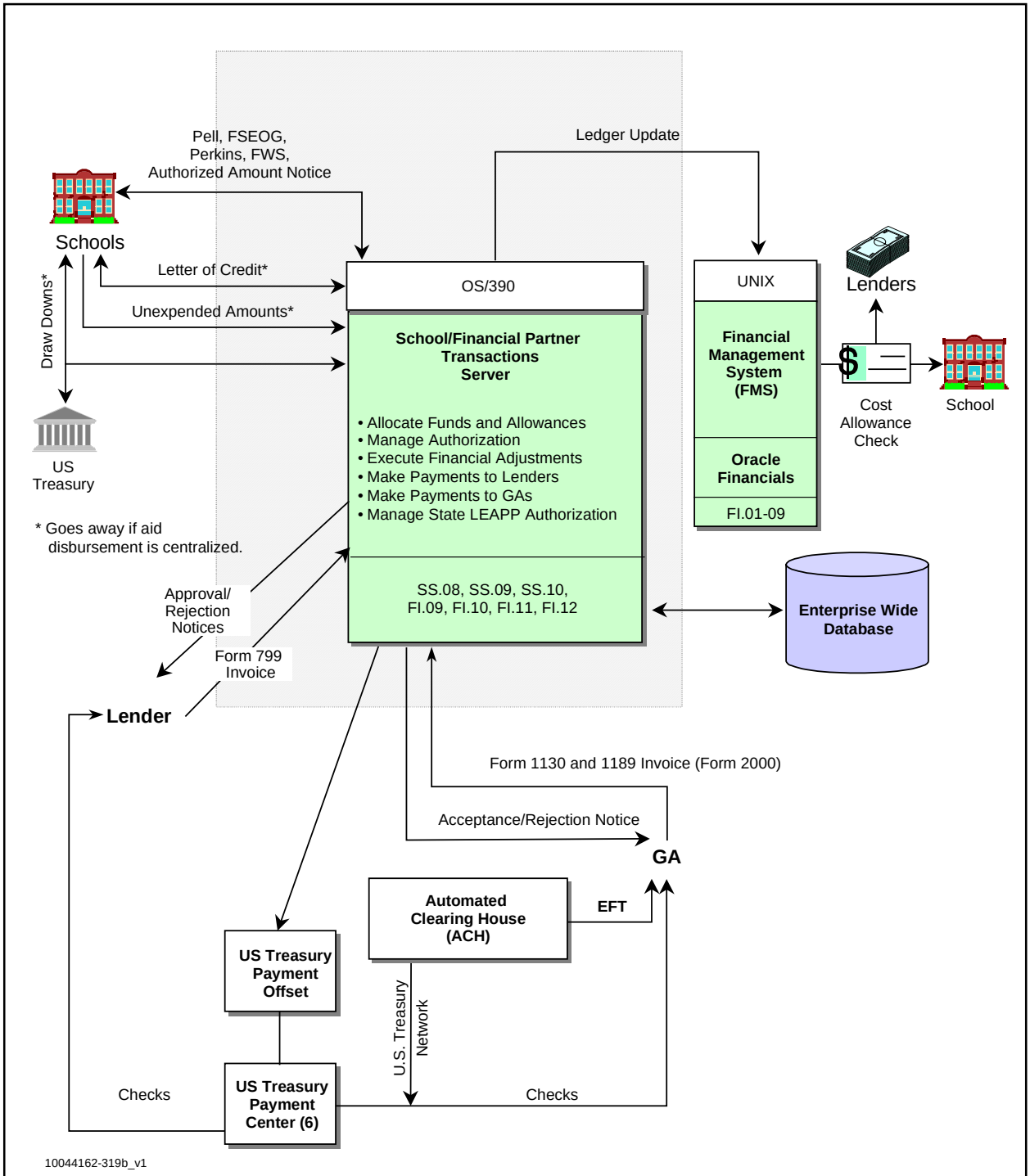


Figure IV.D-12. Target Technical Architecture for School/Financial Partner Services – Financial Transactions (Level II)

Database Services

The database server provides access to information stored in an Enterprise-Wide Database that includes

- Loan and Grant information
  - Campus-Based
  - Pell Grant
  - Direct Loans
  - FSEOG (Federal Supplemental Education Opportunity Grant)
  - FWS (Federal Work Study)
  - LEAPP (Leveraging Education Assistance Program Partnership)
- Performance Information

D.3.4 School Services—Aid Origination and Disbursements

The target technical architecture for school services—Aid Origination and Disbursements Subsystem (Level II) is shown in Figure IV.D-13.

The primary interfaces to SFA financial aid is via SFA Web server and Portal application using a Web browser, e-mail, fax, or paper.

Schools and Financial Partners interface to student aid information is available online and batch by Portal applications, Web browsers, FTP, or e-mail via the Internet. For Schools and Financial Partners that require high data performance, the interface will be via the SFA Extranet.

The SFA staff will have online information available via the Intranet using Web browsers, Portal applications, FTP, or e-mail.

External interfaces to obtain aid origination and disbursement assessment information uses FTP, SMTP (e-mail), and HTTP (Internet) as interface standards.

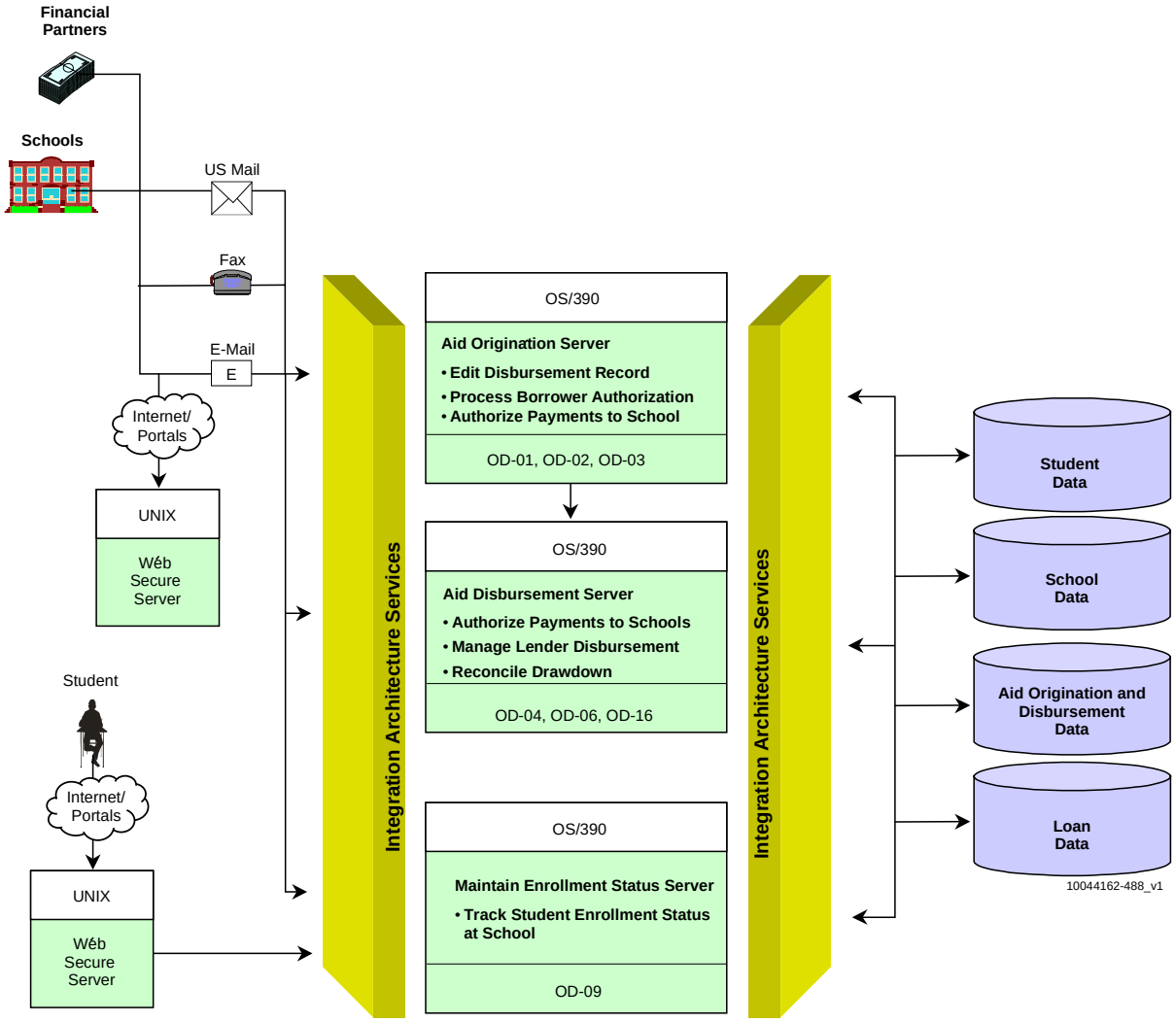


Figure IV.D-13. Target Technical Architecture for School Services – Aid Origination and Disbursements (Level II)

Application Services

The major features are the following:

- Manage aid origination and disbursement applications and renewals entered and modified by Web browsers
- Obtain school eligibility assessments:
  - Edit Common Origination Record
  - Process Borrower Authorization
  - Authorize Payments to Schools
  - Manage Lender Disbursement Information
  - Reconcile Drawdown
  - Maintain Enrollment Status

The portal provides schools and SFA staff the ability to enter, view and modify their aid origination and disbursement records by a Web browser via the Portal.

SFA customers will be able to authenticate the SFA Web server and Portal application before transmitting data to SFA for processing.

For the student interface the Web secure server will provide access control via PIN and user ID. Also, all data between the student and SFA are encrypted using SSL protocol that is provided in the Web server.

For school, Financial Partners, and state interfaces the Web secure server will provide access control and role authentication via user ID, school ID, and password. Also, all data between the student and SFA are encrypted using SSL protocol that is provided in the Web server and Portal application.

The aid origination and disbursement server will provide a consolidated view for SFA partners to SFA financial aid information via a Portal using Web browsers.

Database Services

The database server provides access information that includes

- Student data
- School data
- Aid origination and disbursement data
- Loan and grant data

D.3.5 Performance Management Services

The target technical architecture for performance management is shown in Figure IV.D-14.

The system is comprised of the Customer Satisfaction Performance Management subject area, the Employee Satisfaction Performance Management subject area, the Financial Management Performance Management subject area, and a data warehouse architecture that pulls data from all three subject areas. A subject area is a group of related data pulled from multiple transactional systems. The data warehouse architecture collects, processes, stores, and reports on schools and financial partner performance (including GAs), calculates unit cost for all SFA activities, performs trend analysis, and verifies unit cost reduction goals achievements.

Performance data is viewed via an enterprise-wide data warehouse.

The primary interface with schools and financial partners is Portal applications via Internet and Intranet. However, provisions will be made to accept written and fax data to accept reports and data on performance from those and other sources.

The system shall be able to accept data and reports from ED employees, perform data extraction and query for ED employees, and provide reports to authorized ED employees.

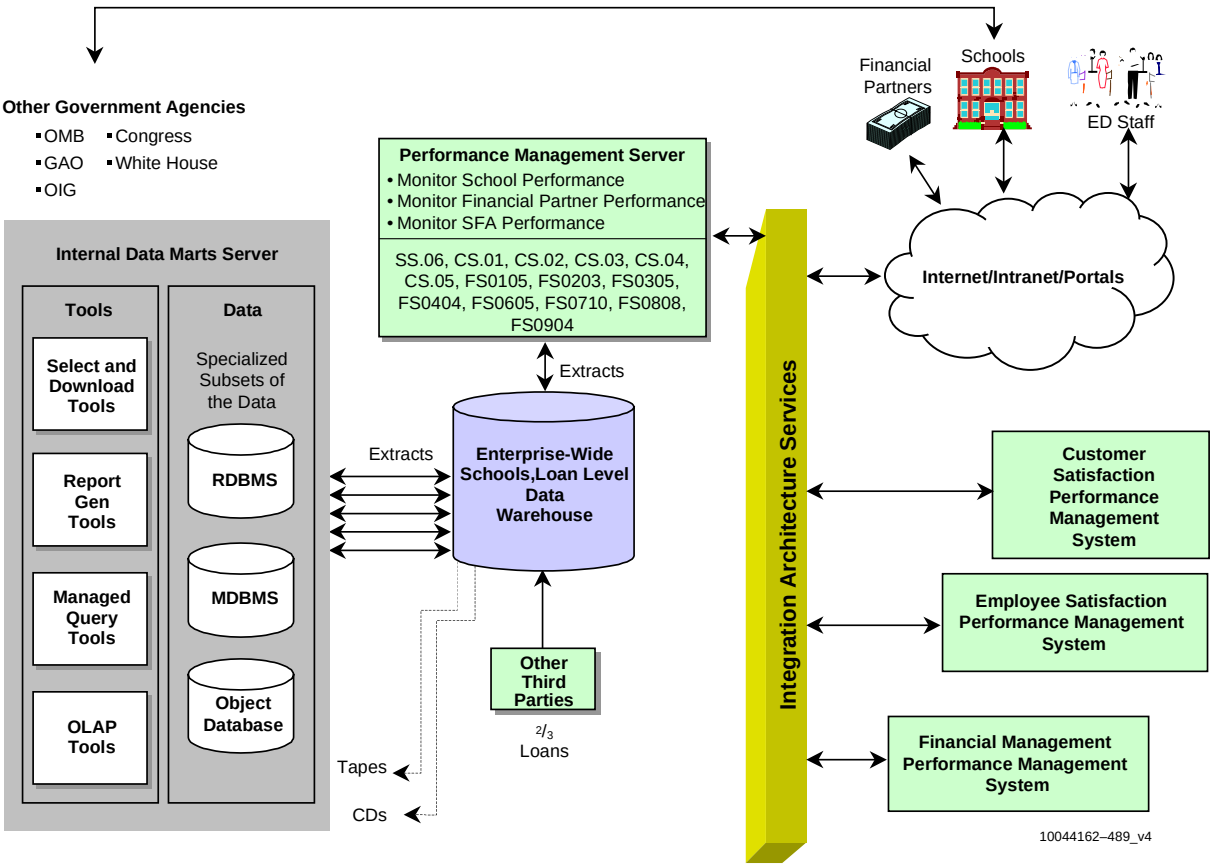
The schools and financial partners performance system shall interface with the Students and the Employee performance management systems.

Application Services

The schools and financial partners performance system shall provide the following functions:

- Set up unit cost reductions goal for all the services and functions performed by SFA
- Perform statistical and risk analysis for all performance and unit cost reduction goals
- Provide statistical sampling and modeling capabilities
- Determine schools and financial partner risk factors based on performance indicators

The application will include tools for computing unit cost, conducting trend analysis, and developing data warehousing tools.



ED Headquarters and Regions

- Oversight of Lenders, GAs, Schools and Services
- Default Rates
- Audits and Program Reviews
- Eligibility (Schools and Lenders)
- Benchmark Reports (Lenders, GAs, School, Services)
- PBO Performance Metrics
- Lenders, GA, School, Performance Metrics
- ED Budget Preparation
- Policy Analysis
- Research

Figure IV.D-14. Target Technical Architecture for Performance Management Services – Consolidated View (Level II)

Customer Satisfaction Management

The target technical architecture for Performance Management—Customer Satisfaction Management Subsystem (Level II) is shown in Figure IV.D-15.

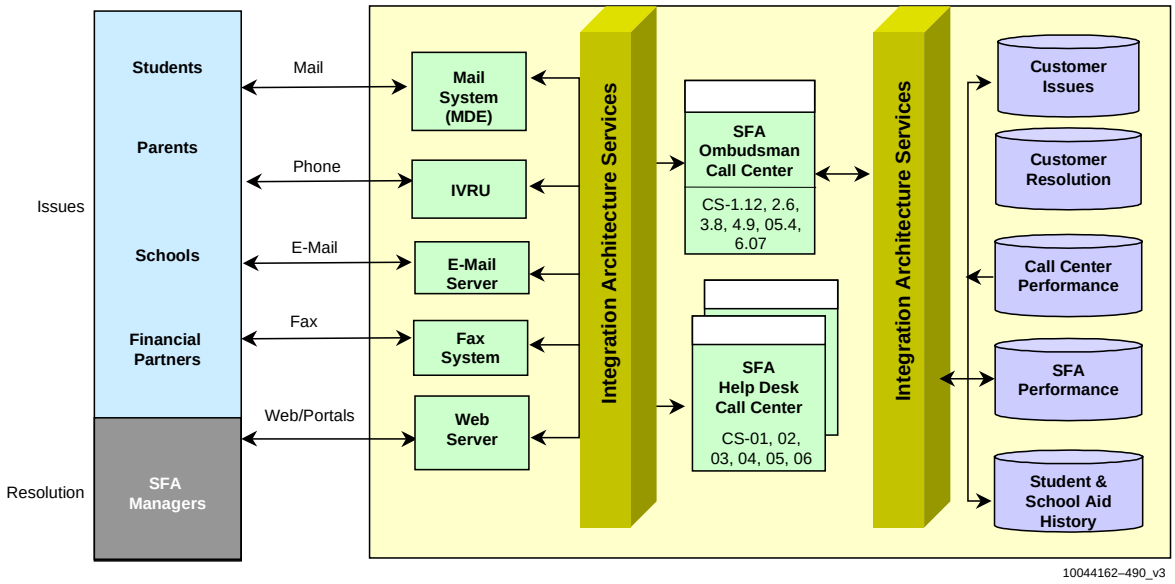


Figure IV.D-15. Target Technical Architecture for Performance Management – Customer Satisfaction Management (Level II)

External interfaces to the SFA Customer Satisfaction Management Subsystem are the following:

- Students
- Parents
- Schools
- Financial Partners
- SFA Managers

The interfaces to SFA employee satisfaction management subsystem are the following:

- Mail via MDE
- Phone via IVRU
- E-mail
- Fax
- Web server

Application Services

The SFA Customer Satisfaction Management Subsystem supports the following:

- Objective setting and planning
- Customer data gathering
- Customer information analysis
- Action planning and decision making
- Feedback and communication

Database Services

The database server providers access information that includes

- Customer Issues
- Customer Resolution
- Call Center Performance
- Student and School Aid History

Employee Satisfaction Management

The target technical architecture for Performance Management—Employee Satisfaction Management Subsystem (Level II) is shown in Figure IV.D-16.

The interfaces to the SFA Employee Satisfaction Management Subsystem are the following:

- MDE
- IVRU
- E-mail
- Fax
- Web server

The mechanisms to collect employee satisfaction data are the following:

- Town meetings
- Surveys
- Web

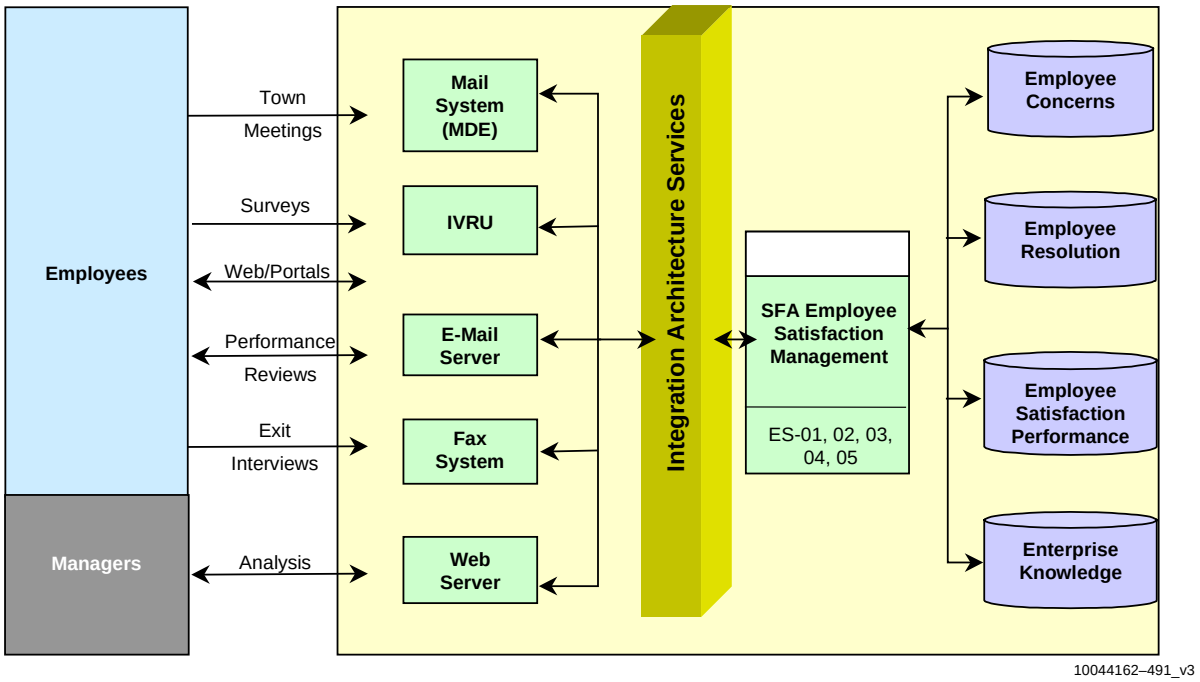


Figure IV.D-16. Target Technical Architecture for Performance Management – Employee Satisfaction Management (Level II)

- Performance reviews
- Exit interviews

Application Services

The SFA Employee Satisfaction Management Subsystem supports the following:

- Objective setting and planning
- Employee data gathering
- Employee information analysis
- Action planning and decision making
- Feedback and communication

Database Services

The database server providers access information that includes:

- Employee concerns data
- Employee resolution data

- Employee satisfaction performance data
- Enterprise knowledge for information sharing within the organization

Financial Management

The target technical architecture for Performance Management—Financial Management System (Level II) is shown in Figure IV.D-17.

The interfaces to Performance Management—Financial Management System are the following:

- SFAM Student Services—Provides ledger updates
- SFAM School Services—Provides ledger updates
- SFAM Financial Institution Services—Provides ledger updates
- ED/CFO—Online transactions, extract data files and hard-copy processing
- ED/Budget—Online transactions, extract data files and hard-copy processing
- ED/Management—Online transactions, extract data files and hard-copy processing
- Lenders
- School
- Vendors
- ED Staff
- Federal Agencies

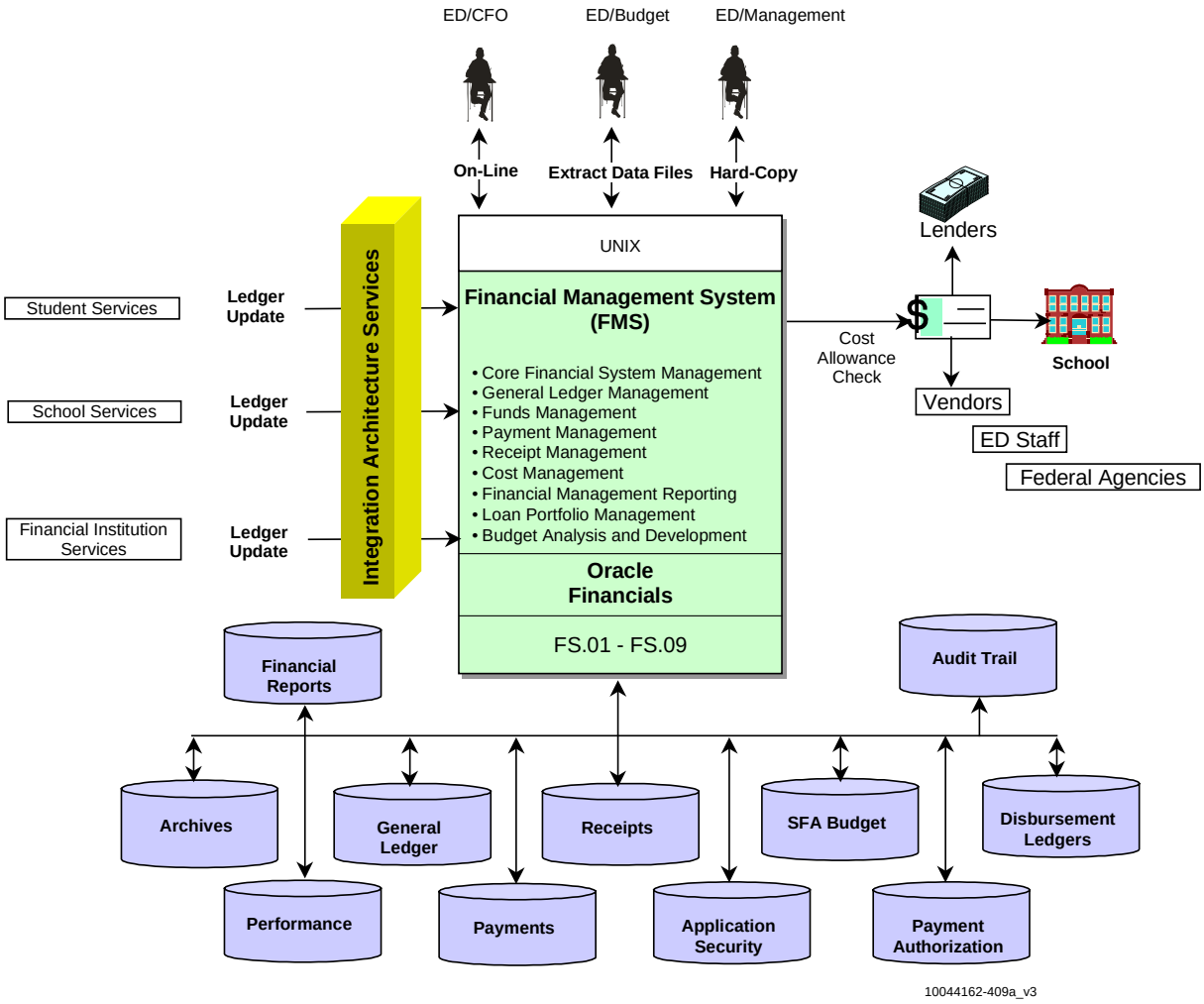


Figure IV.D-17. Target Technical Architecture for Performance Management – Financial Management (Level II)

Application Services

The SFA Financial Management System supports the following:

- Core financial system management—Sets the framework in which all core financial system processes operate.
- General ledger management—Receives transactions to record financial events for the Department of Education general ledger and or the SFA general ledger. Process records financial transactions in the general ledger using double-entry accounting.
- Funds management—Receives funding information from ED/CFO and manages fund appropriations, allotment, and balance for aid program. It supports both government-wide funds management polices and SFA payments.
- Payment management—Processing SFA payments.
- Receipt management—Maintains accounts receivable records by recording, billing, monitoring, and collecting amounts due the government.
- Cost management—Enables SFA to monitor and manage costs by cost object, activity, process, SFA organization unit, aid program, loan type, school, and financial institution.
- Financial management reporting—Generates various financial reports that support effective financial management.
- Loan portfolio management—Supports the management and performance evaluation of the SFA guaranteed and direct loan portfolios.
- Budget analysis and development—Establishes a baseline for budget maintenance and developments the plan of actions for budget.

The Financial Management System (FMS) provides a centralized point for disbursing and recording payables and receivables from and to the Department of Education and SFA.

This system will verify fund availability and will provide budgeting information for various programs. This system will also provide school draw down information and certified payment requests to the Department of Education's Chief Financial Officer (CFO). It will also update ledgers and send summarized repayment information to the ED/CFO.

The FMS will perform the following functions:

- Maintains account receivable records, such as loan repayment transactions and interest payments
- Maintains account payable records, such as school drawdown information

- Performs school disbursement ledgers and collections, and maintains audit trail information on financial transactions

Database Services

The database server provides access to information that includes:

- Financial reports
- Archives
- ED/SFA General Ledger
- Receipts
- SFA budget
- Disbursement ledgers
- Performance
- Payments
- Application security
- Payment authorization
- Financial reports
- Audit Trail

D.3.6 Enterprise Services

Human Resources Management

The system interfaces will be updated in the next version of the Blueprint based on the business model described in Chapter III.

The SFA Human Resources Management subsystem functions are shown in Figure IV.D-18.

The SFA Human Resource Management subsystem is used by SFA Staff and SFA Human Resources Staff.

The interfaces to the SFA Human Resource Management Subsystem are the following:

- Phone via IVRU
- E-mail
- Web server

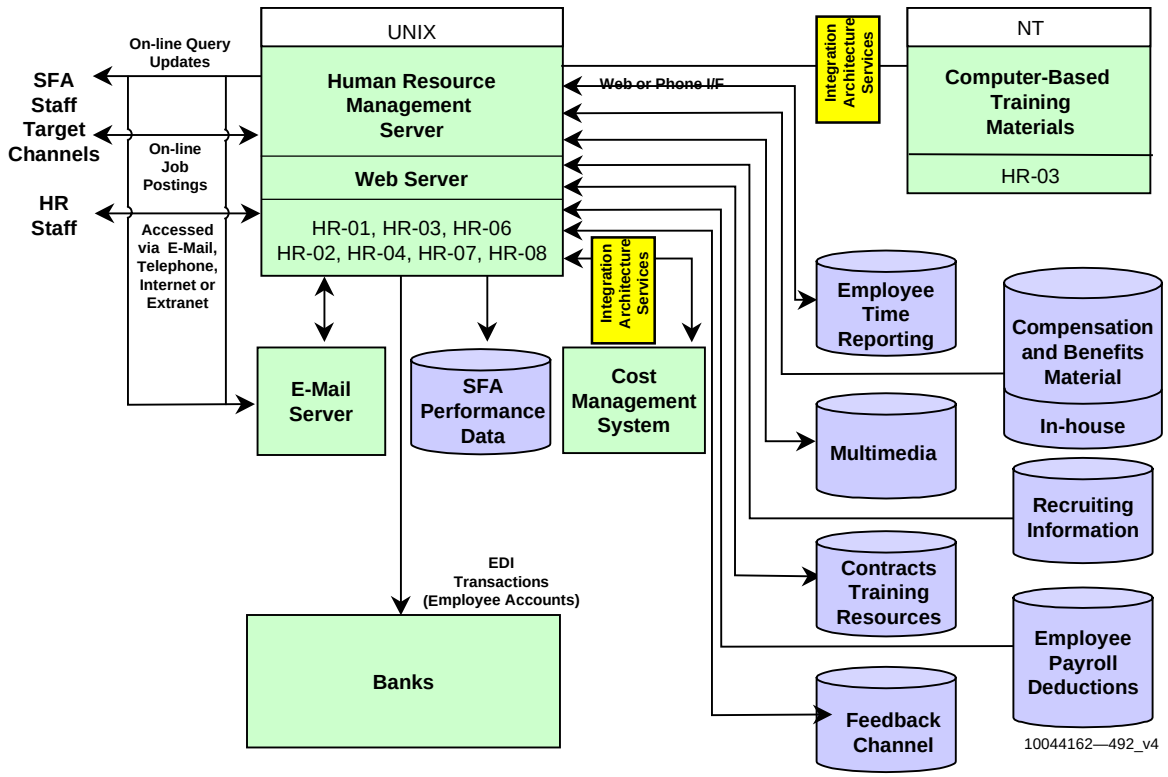


Figure IV.D-18. Target Technical Architecture for Enterprise Services – Human Resources Management (Level II)

The architecture will be updated in the next version of the Blueprint based on the business model described in Chapter III.

Application Services

The Human Resource Management Subsystem supports the following:

- Staffing
- Compensation and Benefits
- Employee Development
- Employee Relations
- Policy
- Employee Performance Management
- Organization Design and Development

Database Services

The database services will be updated in the next version of the Blueprint based on the business model described in Chapter III.

The database server providers access information that includes:

- Employee Time Reporting
- Multimedia
- Contracts Training Resources
- Feedback Channel
- Compensation and Benefits Material
- Recruiting Information
- Employee Payroll Deductions
- SFA Performance Data
- Cost Management System

Computer Based Training (CBT) materials will be provided for the career development of SFA employees. CBT materials provide a learning tool using interactive multimedia presentation that can cover a wide range of topics like Computer Technologies and Computer Software.

Information Technology Management

The target technical architecture for Enterprise Services—Information Technology Subsystem (Level II) is shown in Figure IV.D-19.

The primary interface to the above IT management system is via the SFA Intranet using Web browsers and Portal applications.

Application Services

The major features are the following:

- Enterprise Network Management—An Enterprise Network Management system provides the ability to design, implement, monitor, and troubleshoot business tools as integrated and well-planned business system. Network Management allows for early detection and resolution of problems before the business is impacted. An Enterprise Network Management system should provide the following capabilities:
  - Proactively monitor the health and performance of a network
  - Provide real-time reporting and charting capabilities
  - Be fully accessible via a Web Interface/Portal

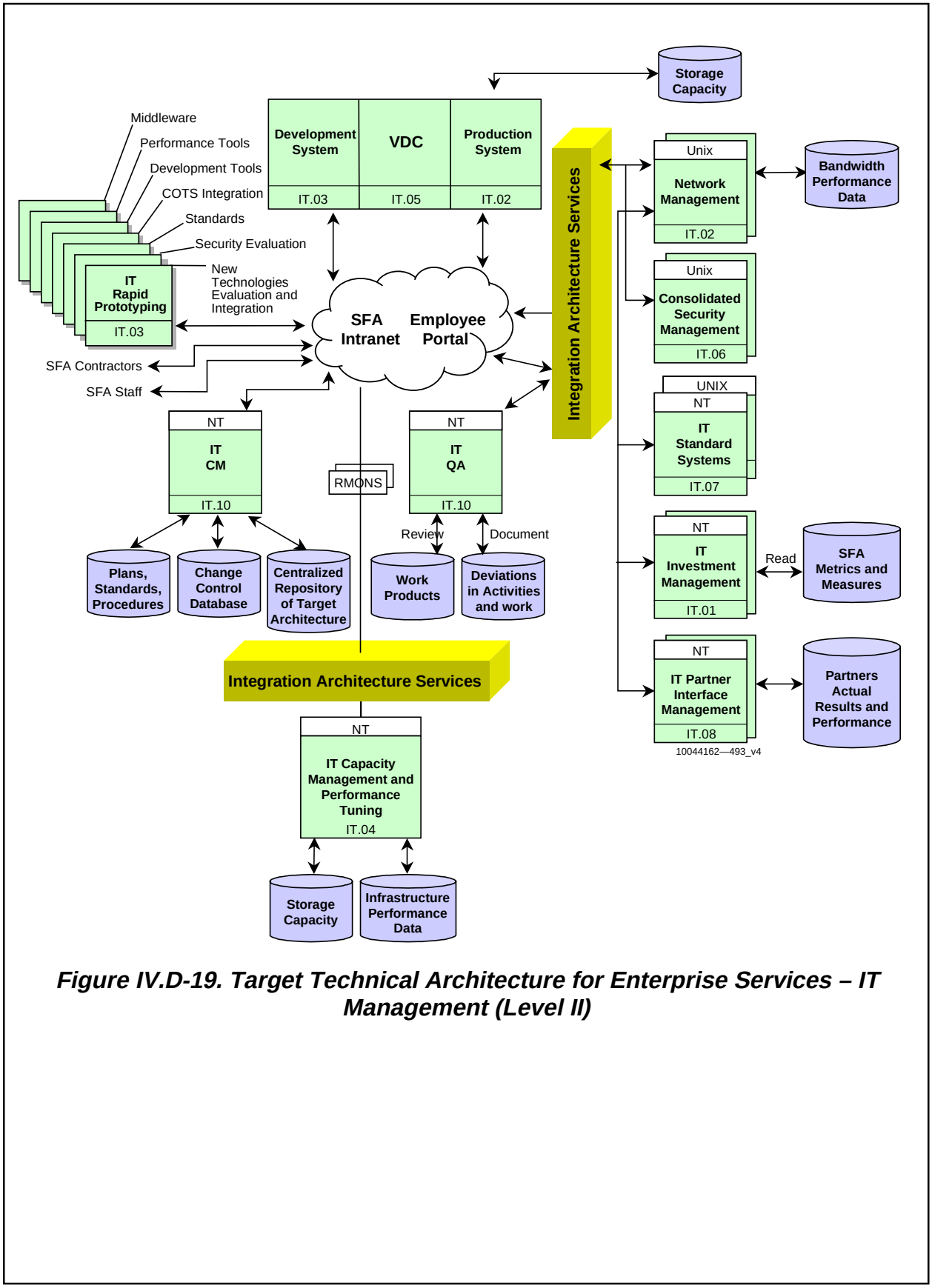


Figure IV.D-19. Target Technical Architecture for Enterprise Services – IT Management (Level II)

- Provide Web-based push technology
- Allow event tracking and view resource availability
- Distribute software over the network
- Provide asset management
- Conduct workload scheduling

- Consolidated Security Management
- IT Standards
- IT Investment Management
- IT Partner Interface Management
- IT Capacity Management and Performance Tuning
- IT CM
- IT QA—The Quality Assurance Program maintains continued awareness of product and service quality, provides management with visibility of the processes used in task performance, and apprises management in a timely manner when existing or potential quality-related problems are detected. The framework of this program is the selection and use of an approved methodology and supporting standards and procedures for the development of work products and the delivery of services. Once the operating framework is established, the QA organization monitors the development of work products and delivery of services to ensure that the resulting products and services meet client requirements and expectations. This monitoring is achieved by ensuring that the methodology-specified processes, standards, and procedures are being followed throughout contract performance and that appropriate corrective action is taken whenever a deviation in required activities or intermediate products of development is detected. Detection of deviations is achieved through the use of methodology-prescribed inspections, reviews, walkthroughs, and audits performed at key points in the development or delivery life cycle. These QA activities are performed not only by the QA organization; but most importantly, by peers of the developers and deliverers of the contracted work products and services. Moreover, the QA Program includes a process improvement component that demands that identified deviations be subjected to causal analysis with the intent of identifying improvements in the involved processes and procedures so that the deviations can be eliminated from subsequent activities.
- IT Rapid Prototyping—Rapid Application Development is based on and uses Component-Based Development (CBD). The CBD approach is for application development and/or assembly based on components where components are units of software with defined stable interfaces. A component may obtain services from other components via its interfaces. CBD is important in providing solutions to

projects involving the design and development of large and complex systems. CBD has structured techniques to develop business objects and models-from which it generates both mainframe and client/server applications. These techniques are aimed at the very quick development of mostly Graphical User Interface (GUI) based, client/server applications and are applied in varying degrees to most software development processes today.

Active user involvement during the project life cycle is the key to RAD. User workshops facilitate user involvement during the project in a controlled manner and at defined times during the project life cycle. With user involvement and automated tools, the developers can follow an iterative and incremental development life cycle. They can develop the software in "slices" (incremental), iterate to refine the deliverables by using techniques such as prototypes, and conduct a walkthrough with the users and have designs of the deliverables confirmed as they progress.

Database Services

The database server provides access to information that includes:

- Enterprise Network Management
  - Bandwidth performance
  - Device Status
- Consolidated Security Management
- IT Standards Database
- IT Investment Management
  - SFA Metrics and Measures
- IT Partner Interface Management
  - Tracks Partners Actual Results and Performance
- IT Capacity Management and Performance Tuning
  - Storage Capacity
  - Infrastructure Performance Data
- IT CM
  - Plans
  - Standards
  - Procedures

- IT QA
  - Work Products
- IT Rapid Prototyping
  - Integration Architecture services
  - Performance Tools
  - Development Tools
  - COTS Integration products
  - Standards
  - Security Evaluation Tools

Facilities Management (IVR Consolidated)

The target technical architecture for Facilities Management functions is shown in Figure IV.D-20. Two additional figures are included: Figure IV.D-21, showing the architecture for a consolidated Interactive Voice Response (IVR) System and Figure IV.D-22, showing the architecture for data and access security.

The interfaces to SFA employee satisfaction management subsystem are the following:

- Phone via Interactive Voice Response (IVR)/VRU
- E-mail
- Web server/Portals

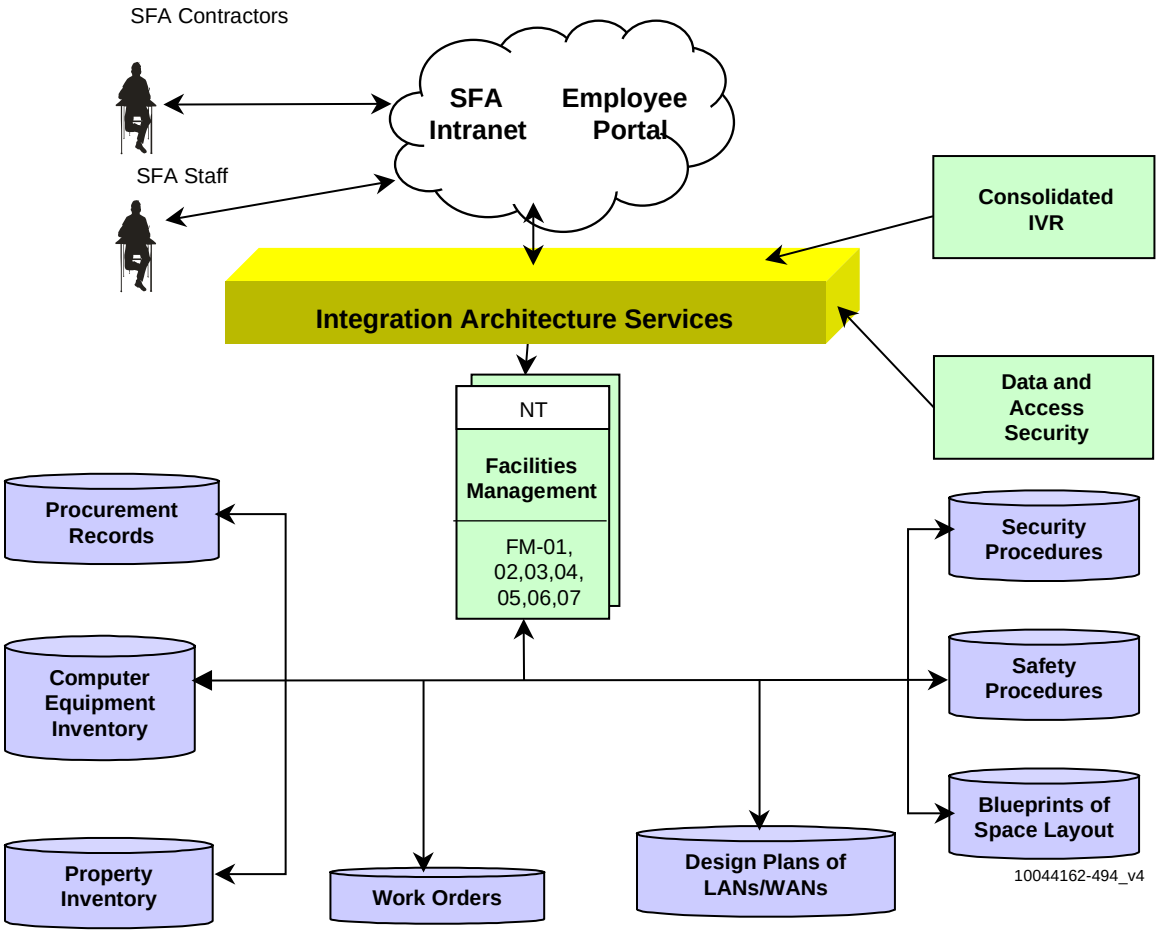
The channels to the SFA Facilities Management subsystem are the following:

- SFA Staff
- SFA Contract Staff

Application Services

The architecture needs to allow for the following items but is not to be limited in scope:

- The identification of equipment investment to support business operations to include property inventory
- The ability to handle maintenance for access cards, security ID's and clearances
- Administration and supervision of support services like reprographics and mailroom functions



SFA staff and contractors can use either Windows or NT Workstations utilizing TCP/IP protocols and any Web browser to connect.

SFA staff will manage the databases and access for the Consolidated IVR's, Data and Access Security.

Figure IV.D-20. Target Technical Architecture for Enterprise Services – Facilities Management (Level II)

- Establishment and execution of scheduled and ad-hoc maintenance repair processes and procedures
- Space planning management to include monitoring of existing space, support of move and layout plans, and coordination of asset movement
- Monitoring and coordination of telecommunications equipment and capacity planning for new installations and changes to existing

Database Services

The database server providers access information that includes:

- Procurement Records
- Computer Equipment Inventory
- Property Inventory
- Work Orders
- Design Plans of LAN/WANS
- Security Procedures
- Safety Procedures
- Blueprints of Space Layout

Facilities Management (IVR Consolidated)

The target technical architecture for the Interactive Voice Response (IVR)/Voice Response Unit (VRU) Consolidated Subsystem (Level II) is shown in Figure IV.D-21. Note that throughout this section the acronym IVR will be interpreted to mean the IVR/VRU subsystem component of the SFAM target architecture.

The interfaces to the IVR subsystem will be the Public Switch Telephone Network (PSTN). Calls from users attempting to invoke application servers will be routed through the Department of Education PBX to a telephony server where prerecorded interactive voice prompts will respond to the callers input. The server will route the call to a customer representative or a telephone extension by invoking interactive voice response services managed by applications running on the IVR application server. Once the service request is processed result sets and associated programmatic instructions are communicated by the application server to the telephony server where interactive prompts are dynamically constructed from prerecorded voice files and played for the user.

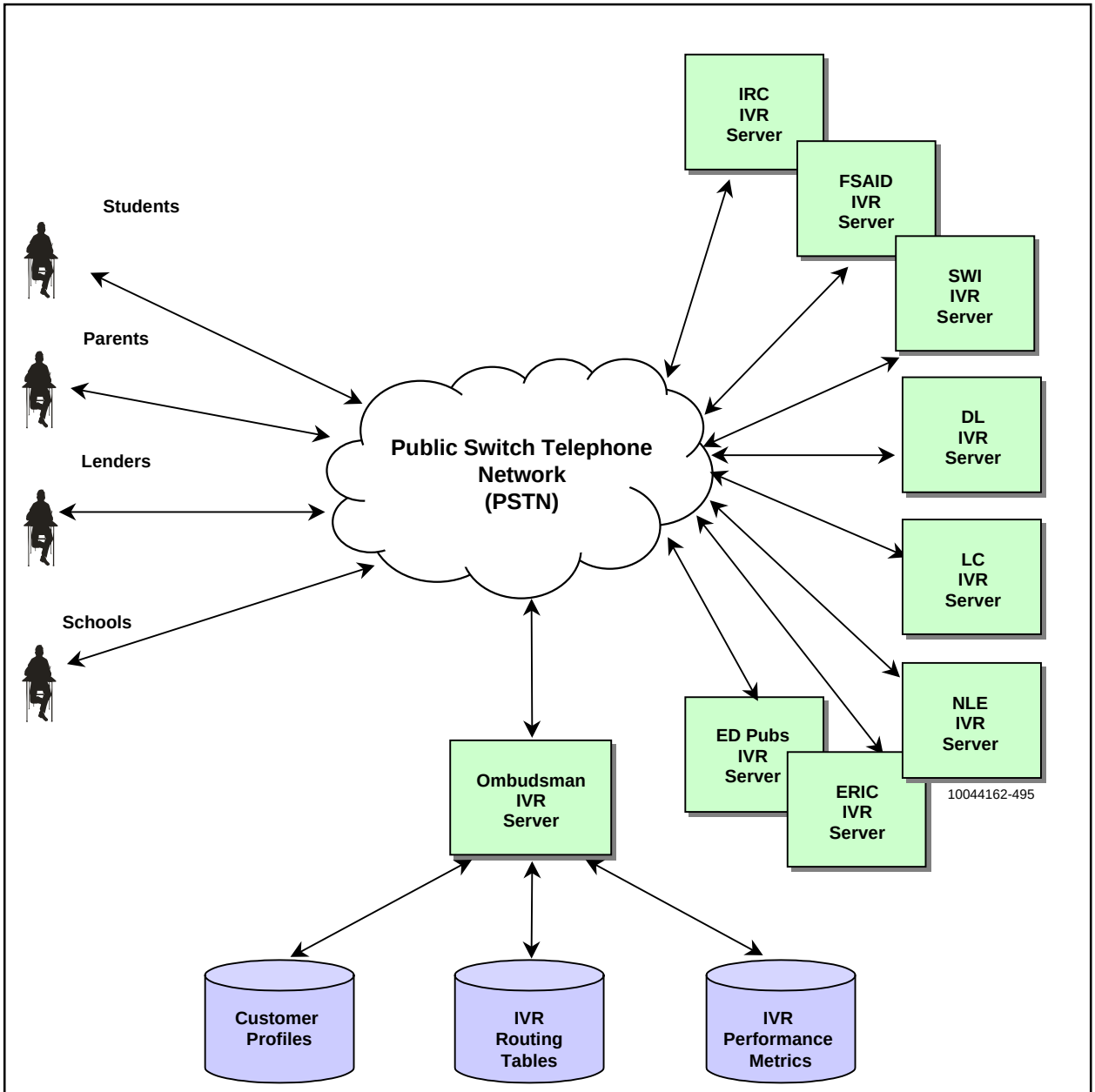


Figure IV.D-21. Target Technical Architecture for Enterprise Services – Facilities Management (IVR Consolidated) Subsystem (Level II)

Application Services

The IVR subsystem will allow all students, lending institutions, schools and support personnel to access information from a central data repository by using the Public Switch Telephone Network (PSTN) with only one 800 number. After dialing this 800 number the caller will be prompted with a series of questions which he or she will respond to by using either or both the buttons on a touch-tone telephone and speaking their selection number for voice recognition. In so doing the call will be routed to the appropriate call destination where a service representative will assist the caller. At the time the caller completes responding to inquiries, the caller profile will appear on the service representative's desktop enabling the representative to immediately respond to questions.

Services that might typically be accessed using this 800 number would include information concerning financial aid, defaulted loans and loan consolidation. Services would also be provided for non-English speaking callers. Other services would include information concerning statistical and research questions related to education, requests for publications, videos and brochures, and inquiries concerning compliance programs. This listing is not meant to be all-inclusive, the variety and quantity of services are vast and can be accessed within other SFAM documents.

In addition to the scenario described above the IVR system will also enable callers to execute certain transactions over the phone without intervention by customer service personnel. If one can use the commercial sector as a means of comparison, some thirty to sixty percent of all calls will be automated.

The major features are the following:

- IVR Subsystem—The IVR is designed to make use of Touch Tone signals and/or voice recognition from the PSTN telephone set in order to route callers to the appropriate destination for service.
- IVR Server—The server will house application software designed to perform a variety of services useful for customer support. It will also house, or have access to, the central data repository for use by service personnel.
- Call Routing—All calls will be routed using a single 800 number through the PSTN to the appropriated destination.
- Caller Interface—Buttons on a touch-tone telephone and/or voice recognition will be the only input required by the caller
- Call Center—Rather than have the caller search for the appropriate phone number for a particular service, the IVR system will route the call to the appropriate destination for service.

IVR involves merging the call processing capabilities of digital telephone systems with management information system technologies to create an intelligent computer-to-telephone system interface.

IVR aware application programs will interface with telephony technologies via an IVR protocol. Specifically, an IVR protocol is used to link telephone network switch technologies, voice response technology, and application servers hosting IVR application software. Typically, and as will be true with the SFA architecture, IVR will be integrated with Computer Telephone Integration (CTI) technologies to deliver a comprehensive telephony driven information management solution.

IVR technologies provide automated voice response, call routing, and telephony based application invocation services. CTI technologies, on the other hand, manage transactions that cannot be satisfied by the IVR solution. That is, CTI technologies collect transaction and caller identification and profile information from the IVR solution and route this information (and the call) to a customer service representative.

Database Services

The database server will provide access to service information. It will include:

- Lender and school performance data
- Customer profile data

Facilities Management (Data and Access Security)

The target technical architecture for Enterprise Services Facilities Management Data and Access Security (FM-03) addressing the Safety and Security interfaces with other SFA databases and systems (FM-03.01) is shown in Figure IV.D-22.

The primary interfaces to the SFA databases include Internet, Intranet, and Extranet.

Application Services

The major features are as follows:

- An efficient and scalable means of performing authentication, authorization, and administrative services at enterprise portals. It includes provisions to authenticate the identity of system users, with the capability to employ appropriate methods for specific users, user groups, and resources depending on the level of security they require. The security methods used to gain access to the data within the system, e.g., passwords, token, digital certificates, biometrics, custom-developed methods, et al, may be employed simultaneously.

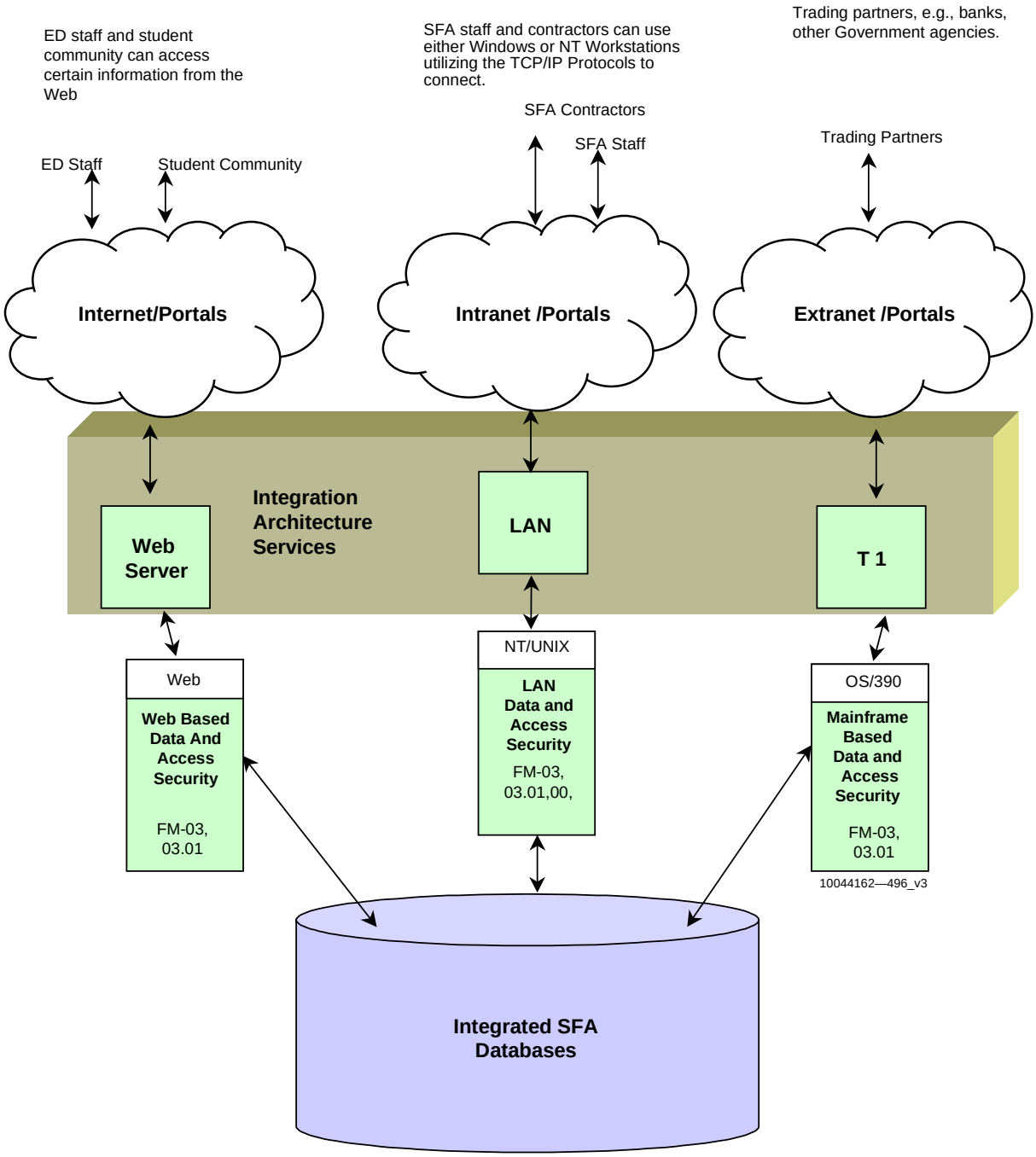


Figure IV.D-22. Target Technical Architecture for Enterprise Services – Facilities Management (Data and Access Security) (Level II)

- Authorized users may be permitted to gain access to the specific component of the enterprise resources based on their relationship and need to know SFA data at that moment in time. This capability is utilized in concert with the authorized user's profile, preferences, and any services the user may have been accorded permission to access. Therefore, each user will have, in effect, an individualized navigation menu, which presents only those areas for which the user has permission to access. This approach ensures the security of protected resources. External users as well as other databases and systems could access everything presented on their menu.

In order to ensure that the security methods and procedures function as required the effective administration of the security products will enable SFA to maintain centralized control over Web security, ensure consistent enforcement of security policies, and perform enterprise-wide security monitoring and real-time auditing.

Security software shall address the needs of the facilities environment, which includes Intranet, Windows NT, Risk Management, and Authentication.

Data and Security Access components includes:

- Web Security—Authorizes user access to Intranet resources and provides single sign on to applications and databases. To the user community, the page presented will display only those URLs that the user is authorized to access.
- Policy Compliance—Establishes and enforces enterprise security policies through security risk assessment and policy auditing. This is a key tool for all organizations because it allows SFA to define and maintain a security baseline standard, which is used to ensure that security policies are maintained.
- Enterprise Security Administration—Allows the security administrator the capability to create and delete user accounts on multiple platforms from a single point.
- Authentication—Identifies which users are trying to gain access to information, and verifies their identities using policies SFA has established for authentication.
- Secure Communications—Provides secure end-to-end TCP/IP communications for applications on Windows-based workstations, and Unix and Windows NT servers. It employs industry-standard public key infrastructure (PKI) technology, in use at many large organizations, to authenticate each end of the communications channel, ensuring security throughout the communication process.
- Windows NT Access Control—Provides cross-platform security administration for distributed Windows NT and UNIX environments. The product allows security managers to tailor access privileges for any user.
- UNIX Access Control—Provides comprehensive security management solution for distributed UNIX environments protecting information assets from unauthorized access, modification, or destruction.

- Virus Protection implemented as a server- and client-based solution for central virus protection and virus policy management.

Single Sign On allows users to securely log on to all their applications with only one user ID and password. This is one of the first products available that supports directory-based user administration, which can greatly consolidate and simplify administration.

The security software would provide the capability to manage database security privileges. It should reduce the risk of intentional or accidental data corruption. It would allow security staff who may not be expert in the databases under consideration to manage database security.

Database Services

Data access is on all SFA data.

Contracts and Acquisition Management

The target technical architecture for the Enterprise Services—Contracts and Acquisition Management (Level II) is shown in Figure IV.D-23.

The primary interfaces to SFA Enterprise Service—Contracts and Acquisitions databases will be via SFA Intranet using application services using GUI screens.

Application Services

The major feature is the SFA Intranet that will provide SFA staff and/or contractors with an efficient and regulated system to get required products and services.

SFA staff is to review and follow the Federal Regulations Guidelines, SFA IT Investment Board Guidelines, SFA Budget, and the Capability Maturity model requirements to achieve the accuracy and perfection desired in this system.

SFA staff and contractors will access to create, read, update, and delete transactions on Contracts and Acquisition databases.

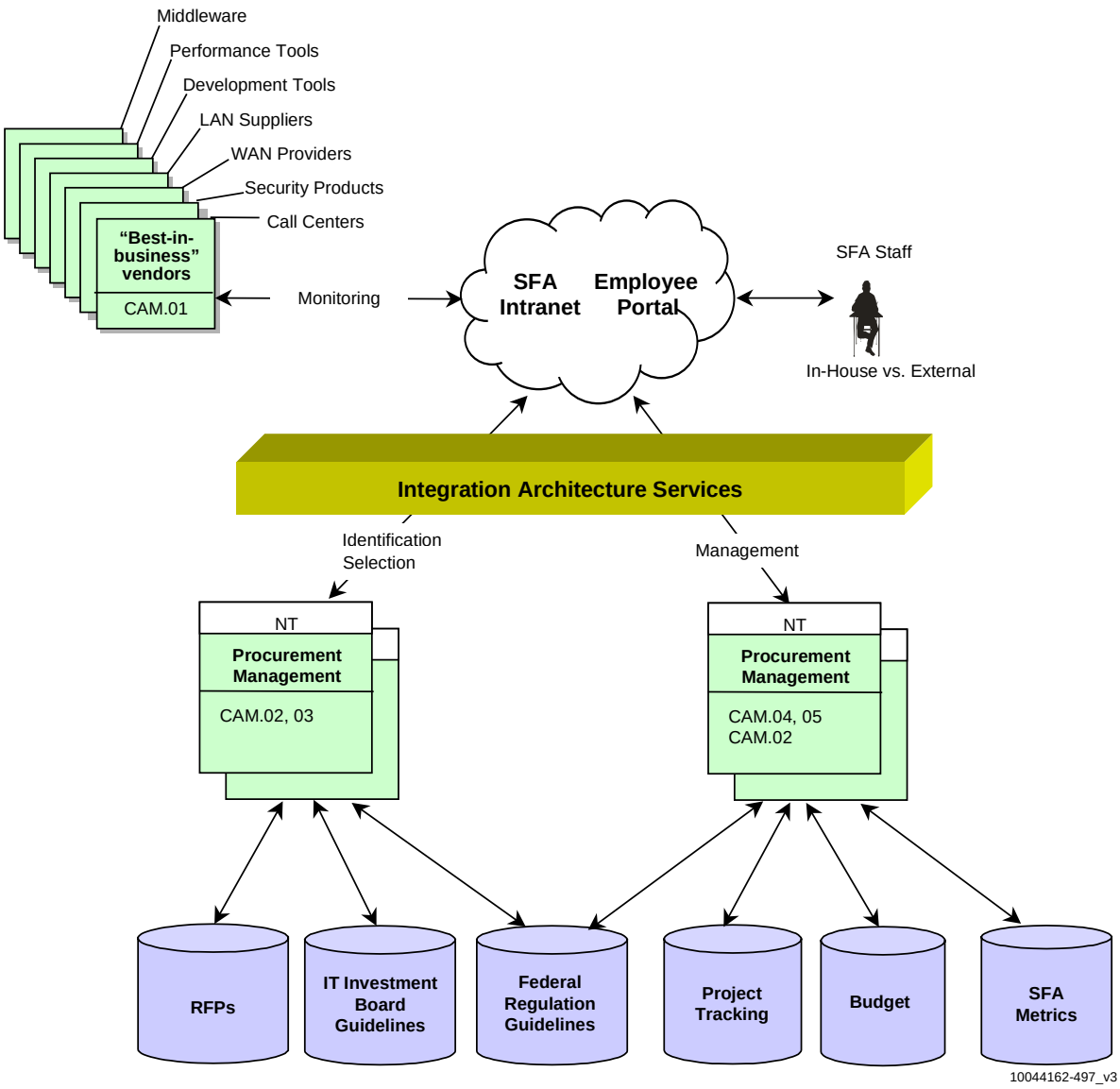


Figure IV.D-23. Target Technical Architecture for Enterprise Services – Contracts and Acquisition Management (Level II)

Database Services

The Contract and Acquisition Management Subsystem will access the following SFA databases:

- The Capability Maturity model requirement server.
- The IT Investment Board Guidelines server.
- The SFA Budget server.
- The Federal Regulation guideline server.

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E. SFA Privacy Architecture

The purpose of the privacy architecture is to ensure secure information exchange among schools, financial partners, SFA staff and students. The technical architecture identifies the data needs, services, and access mechanisms for each of these groups of users. Figure IV.E-1 shows an overview of the privacy architecture.

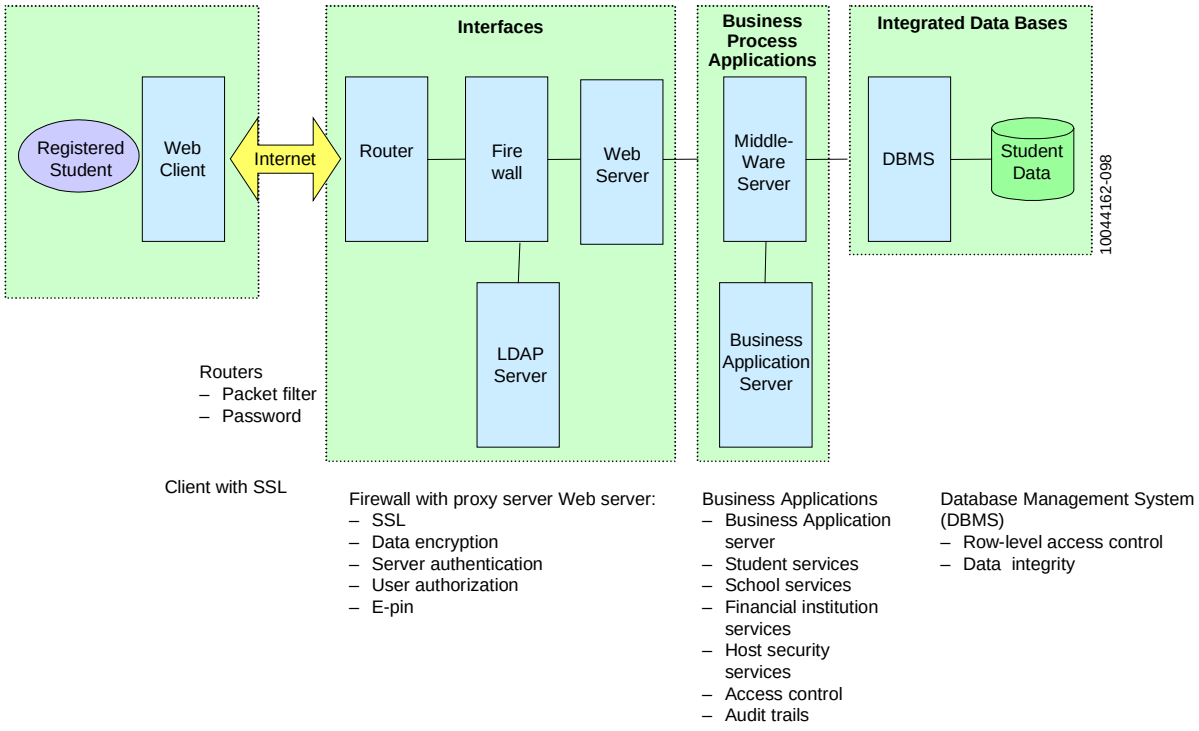

Figure IV.E-1. Privacy Architecture

Constructs

The constructs of the privacy architecture consist of processes and privacy enablers.

Processes

The first type of construct is the process. The architecture for implementing privacy consists of five basic subprocesses:

- User Authentication and Role Mapping

  User Authentication and Role Mapping provide services to establish access rights. The User Authentication and Role Mapping provide validation of the identity of the user requesting services, and assigns appropriate access privileges. For a

known user, the access privileges are assigned based on the database of roles and related privileges. The effectiveness of User Authentication and Role Mapping is essential to success, since all other subprocesses depend on the results of this for determination of their actions. The allowable access privileges for each type of role are set by SFA policy.

- Network Access Control

  Network access control provides the means to assure that user services are provided only in the domain of the SFA network that is allowed. The domain and access rights are defined by the roles, and implemented in the network components.

- Platform Access Control

  Platform access control ensures that access to platform services and data are limited to those authorized for access. This function is the primary privacy process for some SFA users who need direct access for administrative purposes and is secondary for the remaining users.

- Process Access Control

  Process access control ensures that individual processes are available only to those with access rights to the data managed by a process. Process access control is provided by the integration architecture services connecting the interface components to the business processes, using the roles specified for the user.

- Data Access Control

  Data access control provides the mechanisms to assure that the user only sees or affects data that he has specific authorization to access. For example, this process assures that a Student will only see either public data or his own personal data. Data access control is provided by a combination of components that can include the configuration item performing the data access, as for a DBMS.

Two subprocesses are added for management of privacy activities:

- Privacy Administration
- Privacy Performance Management

These subprocesses provide a layer of security underlying the technical architecture. Incidental to the technical architecture are other privacy related functions, including policy setting, training, and other elements of the standard practices as identified in the Systems Security Engineering Capability Maturity Model (SSE-CMM) used as a baseline. These are incidental in that there are no unique requirements which drive the architecture.

Privacy Enablers

The privacy enablers implementing the processes are dependent on the path taken to the data. Figure IV.E-2 shows the configurations implementing security processes for

the three SFA business channels, as well as for SFA staff. Generally, the variations are in the interface layer, as the paths largely converge in the business process layer. There are also variations in the data layer, as the varying types of data may have different processes accessing them.

Target Privacy Architecture

As with a great deal of the Federal Government, SFA would like to do business electronically. In order for SFA to do business in the world of electronic commerce (E-commerce), they must fully address the associated issues of privacy and security.

While there is some overlap in the definitions, the distinction between privacy and security lies in the following definitions: privacy recognizes that certain types of data are personal and assures only the owners of this data are able to access it; security is protecting your systems from intruders (unauthorized). Issues arising from selecting and implementing a privacy architecture must be considered within the confines of the Federal Claims Act which drives the mechanisms by which the Federal Government can control it's risks (and liability) in the implementation of leading-edge privacy and security technologies (e.g., digital signatures, third parties, etc.).

Many of the leading edge technology solutions in the area of privacy/security, such as public/private key services and digital certificates, are costly. Since the Federal Government is precluded from charging persons applying for financial aid some of these technologies may be too expensive for implementation enterprise wide. Rather, business areas will be targeted for these technologies based on risk and cost/benefit analyses.

The SFA stand on managing private information is: Anything associated with an individual must be protected. However, under Title IV there is a mandatory "requirement" to share information with SFA business channels. SFA has, therefore, developed the concept that shareable information will be identified and relevant persons notified that this is "shareable" information and to what purpose it will be used. This will be coupled with a widely reviewed ED/SFA Enterprise Security/Privacy manual. Individual agreements will be negotiated with Banks needing access to specific systems such as the NSLDS.

Channel	User Authentication	Network Access Control	Platform Access Control	Process Access Control	Data Access Control	Privacy Administration	Privacy Management
All	• Directory services: user class assignment	• Authorization server – Directory • Packet filtering	• Authorization server • Platform O/S	• Authorization server • Transaction server • DBMS • Antivirus scanner	• DBMS	• Directory services-user class • Platform O/S • Privacy admin suite • Enterprise wide privacy security manual	• Network monitoring suite • Intrusion detection tools • Audit tools • Access control mgmt tools • Directory services-user class • Enterprise wide security audits
Student	• Web encryption • Password authentication • Cookie authentication	• Firewall w. proxy					
School	• Web encryption • Password authentication • VPN server	• Firewall w. proxy • VPN server					
Financial Institution	• Web encryption • Password authentication • Cookie authentication • VPN server • Digital signature authentication	• Firewall w. proxy • VPN server					
ED Staff	• Web encryption • Password authentication • Cookie authentication • VPN server	• Firewall w. proxy • VPN server					

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Figure IV.E-2. Privacy Enablers

Figure IV.E-3 illustrates the target SFA Enterprise Network Security/Privacy Level I architecture for the modernized SFA systems. Listed under each architectural component are security mechanisms and tools that may be used to provide security and privacy protection. Within this diagram:

- Pink is the open network that represents moderate levels of security.
- Turquoise is a partial closed network that represents a higher level of security.
- Yellow is a closed network representing the highest- level security environment.

The target SFA privacy architecture is based on several assumptions:

1. SFA is moving away from its proprietary Title IV WAN to the Internet (IP)
2. SFA trusted systems should comply with C-2 security level to provide uniform security architecture.
3. A risk-based approach must be used in selecting COTS security mechanisms for the SFA target modernization architecture. Such questions as:
   - What are the highest value transactions?
   - What is the nature of the interactions?
   - What is their frequency?
   - What is their value?

   Must be asked in conjunction with identification of the risks and the cost/benefits of mitigating those risks.
4. Customer privacy will be protected from the point of contact with the SFA network to SFA Title IV systems to help give the public confidence in doing E-Commerce with ED/SFA.
5. In order to ensure that information is released correctly, technologies will be implemented which assure robust authentication and identification to verify a match between identities and information within the SFA databases.
6. Security is designed into the target SFA modernized systems and becomes a routine part of operations (e.g., SFA trusted systems should be audited yearly to verify compliance of Enterprise Network Security Policy). Enterprise Network Security Policy/Procedures and Firewall Policy/Procedures should be enforced via network and system security audits.

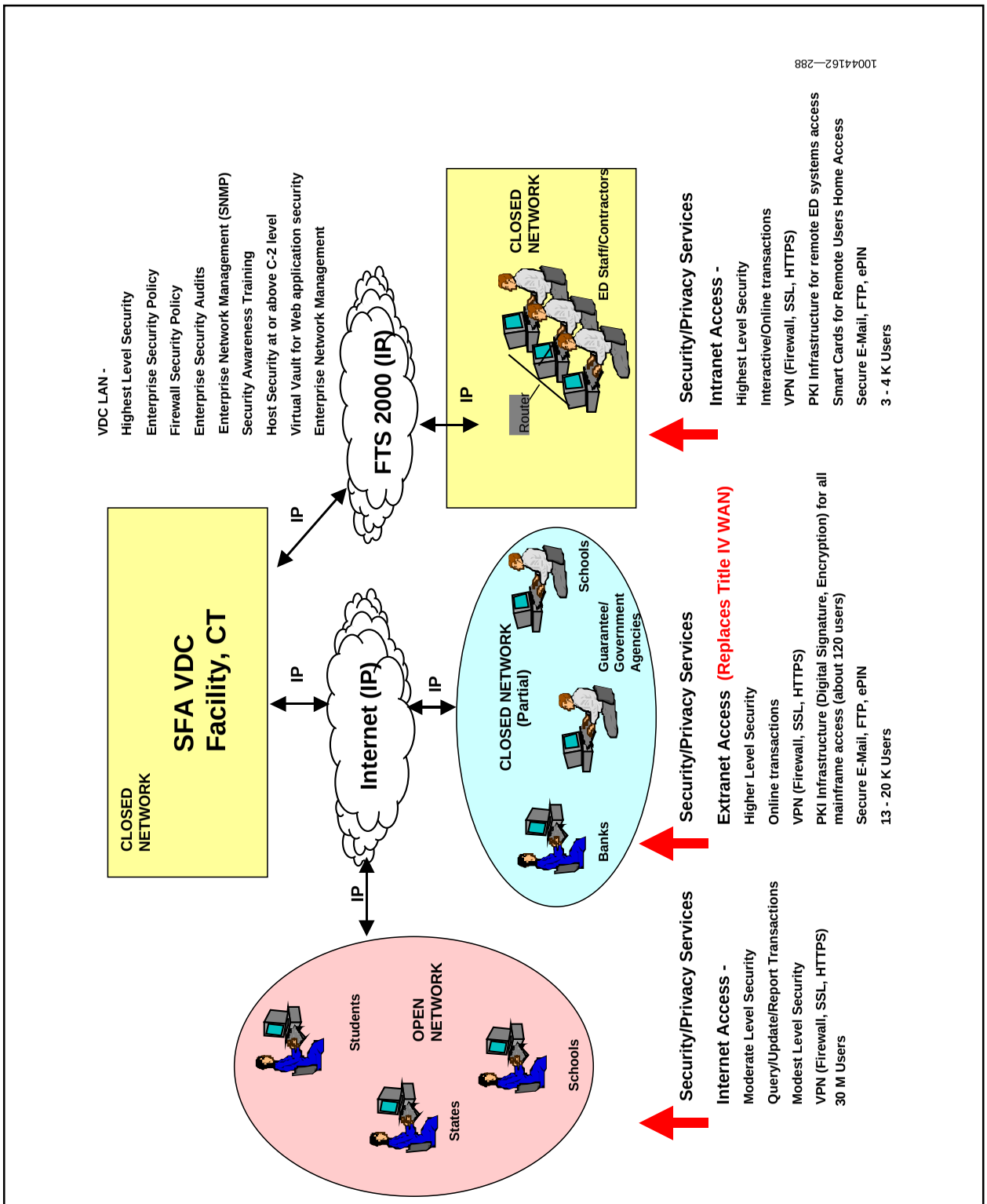

Figure IV.E-3. Enterprise Network Security/Privacy – Level I Architecture

7. PKI infrastructure (digital signature, encryption) should be provided to SFA remote trusted systems (outside of VDC) and appropriate external channels.
8. Remote access (dial-up) connections to Title IV resources by ED staff/contractors will be via smart cards.
9. Enterprise security network and systems products will be COTS and Open Systems-based that comply with C-2 security level at a minimum.
10. Customer requests for money transfers will be via secure mechanism.
11. All Web communications via the Internet will be protected by e-PIN, Secure Socket Layer (SSL) technology, Firewalls and Title IV systems security mechanisms.
12. Centralized Security Administration Facility (CSAF)
    a. Provide enterprise-wide administrative process for system access and accountability
    b. Provide central access control for all operating systems
    c. Provide ability to accommodate the evolution of the various legacy systems to a single operating environment
    d. Provide enterprise security audits of SFA systems and networks
    e. Establish and maintain an SFA enterprise security/privacy documentation
    f. Evaluate and implement new security technology into the SFA infrastructure

Security Framework

To ensure information security and protect the business assets of SFA, all areas of the security architecture (people, process and technology) will be developed as part of the security solution. Use of the security framework during the plan, design, build and operations phases of the SFA security architecture will ensure integration of people, process and technology. The security framework is structured into the following three areas:

- Business Assets, Security Strategy and Risk Management – form the core of the model.
  - ***Business Assets*** represent what needs protection, and is the target of all information security efforts.
  - ***Risk Management*** - analyzes the ***Business Assets'*** value and the cost to protect the assets, identifies the level of protection required, and discovers the threats and vulnerabilities that must be addressed through the *Security Strategy*.

- ***Security Strategy*** - defines the conceptual approach and direction the organization is taking to secure the *Business Assets* at a business capability level.

- Core Capabilities – include Security Management, Security Administration, Security Operations, Security Awareness, Security Policy and Standards, Security Development, and Security Compliance. Core Capabilities are the security functions performed by people to provide a desired level of information security. The level of information security provided is determined by the Risk Assessment.

- **Technology Architecture** - consists of the Security Infrastructure and Security Services that protect the **Business Assets**. Together with the **Core Capabilities**, the Technology Architecture provides the protective tools and services that help achieve the **Security Strategy**.

F. Level III Design Specifications

F.1 SFA Release 1.0 Project Design Statements and Specifications

This section contains Level - III Design Statements and Specifications for five initiatives/projects that SFA is planning to implement within fiscal year 2000. The five projects are:

- Ombudsman Case Tracking System
- Links to Financial Planning Sites
- FAFSA Web Changes
- SFA Financial Management System
- Digital IDs Registration

F.2 Ombudsman Case Tracking System

F.2.1 Overview

The Ombudsman's Office receives, reviews, and attempts to resolve complaints from holders of student financial assistance loans, compiles and analyzes data on the borrower complaints, makes recommendations for improvements, and reports on the activities and effectiveness of the Ombudsman office.

A call tracking and decision support system is required to support the Ombudsman office. The system will have the capability to log an incoming call from a customer into a database and to track actions taken on the case using a case tracking number. The system must also provide extensive management reporting.

The system will be implemented in two phases. The first (interim) phase will provide automated support via the ED Intranet to a limited number of staff in the Ombudsman's office using a Microsoft Access 97 database. The second phase will involve the implementation of a commercial off-the-shelf (COTS) tracking system for the enterprise. The Access database will be converted to Oracle to enable an enterprise solution.

As a separate but related effort, a Web site will be developed and linked to the Department of Education's Home Page. The initial purpose of this site is to provide information about the various types of loans available, answers to frequently asked questions, and information about the Ombudsman function. In Phase II, the Web site will be expanded to provide an access method for customers to submit inquiries to the Ombudsman office, decision trees, and key word searches.

F.2.2 Level II Business Requirement Specifications

The following subprocesses and business requirements are supported by the development and implementation of the Ombudsman's Case Tracking System:

- CS-01.12
- CS-02 (all requirements)
- CS-03 (all requirements)
- CS-04 (all requirements)
- CS-06.07

F.2.3 Design Description

Inputs

Inquiries by student loan borrowers and others in the student financial aid community ("customers") will be stored in a central database by the Intranet. The database will contain information on the customer, the actual inquiry, and each contact that the Department makes with regard to the case. These are summarized below.

Customer information: Name, social security number and account number (if account number is different); birth date; telephones; address; e-mail; fax; and hours of availability.

Inquiry information: Case tracking number; case type; date contact received; date contact closed; referred from; call referred to; account servicer; complaint against; date due for follow up; next steps; priority; summary description of inquiry; ombudsman specialist assigned; contact sources (fax, e-mail, letter, telephone call or referral); complaint type; closure information (date, reason, description).

Contact information: Contact date; description; source and specialist making/receiving the contact.

Loan information: Loan data for this individual

Process

1. Inquiry is received through phone, e-mail, Internet, U.S. postal service or fax.

   If the inquiry is related to a new case

2. The system automatically assigns a case tracking number.
3. The user selects a case type (general assistance, inquiry, complaint or problem) and records required information based on the type.
4. If it is general assistance, the date received/closed is automatically filled in with the current date.
5. Inquiries can be closed at a later date.
6. Problems are assigned a priority and account servicer
7. Complaints are assigned a priority, account servicer, and additional information is collected (who the complaint is against, description of the complaint, follow up steps).

   If the inquiry is related to an existing case

8. The user locates the affected customer or case based on search criteria. Matching records are displayed from which the user may pick.

   For customer searches:

9. In the Phase 1 (Access) version, the user may search on any field in the **Customer Information** screen.

10. In the Phase 2 (Oracle) version, the user may search on customer first name, last name, social security number, and birth date. In addition, key word searches on the description and reason closed fields will be available.

    For case searches:

11. The user may search on the case number field in the **Case Information** screen.

12. Case information is added/updated as required in the **Case Information, Contact Information** and **Case Information** windows. These windows allow users to add/update basic information to describe the case from the complainant's perspective, contact information, and case history information.

13. Basic information describing the case was detailed in the **Case Information** Input section above.

14. Contact information includes the date; source and specialist making/receiving the contact; and description.

15. Case history includes the date received, contact date, description, and agent.

16. Administrative functions provide the input for pick lists, searching, etc. Administrative functions will be included in the Phase 2 (COTS) version. Administrative functions include the following:

    - Specialists (name, type, location)
    - Partners (organization name, address, organization phone, point of contact, contact phone)
    - Reason Closed
    - Automatic functions for letters and follow-up activities
    - Automated workflow of work items
    - More extensive case tracking of work steps

Four types of reports are available. These are described in the **Outputs** section below.

Outputs

Outputs from this system will be in the form of reports only. These are listed below.

- **Summary of Open Cases:** Summary of all cases opened, but not yet closed. The report will list the case tracking number, customer name, date received, specialist assigned, and priority. Report is sorted by oldest date received, then by priority code.

- **Detail of Open Cases**: Details on open cases. The report lists case tracking number, customer name, date received, assigned ombudsman specialist, summary description of inquiry, priority code, date due for follow-up, next steps detail, account servicer and case type. Report can be sorted on any of the data elements listed above.
- **Performance Report**: Key performance metrics and their values. For example, metrics might include number of inquiries received, number pending (totals by number of days outstanding), average time from complaint received to closure, complaints received by program participant (school, lender, guaranty agency, SFA, collection agency, loan servicer). The user can select metrics for a specified period using "to" and "from" dates.
- **Detail Report of All Cases:** List of all cases (open and closed). The report lists case tracking number, customer name, date received, assigned ombudsman specialist, summary description of inquiry, priority code, date closed, account servicer and case type. Report can be sorted on priority, date received, account servicer, case type and specialist assigned.
- **Extensive management reporting to include:**
  - Reports by category of student. Loan, region, etc.
  - Metric reports on workload by case type, specialist, work step, etc.

F.3 Links to Financial Planning Sites

F.3.1 Overview

The Department of Education is expanding its role on aid awareness by identifying, reviewing and ranking financial Web sites that accurately quantify the costs of education using different scenarios, reflect the latest changes in Federal Aid and Loan programs, and increase the awareness and responsibilities one assumes when accepting loans. To support this activity, the Department of Education will maintain a list of financial simulation Web sites on the Department's homepage (www.ed.gov). Each financial Web site link will be ranked according to customer service values of user-friendliness and accuracy of data.

F.3.2 Level II Business Requirement Specifications

The development and implementation of Links to Financial Planning Sites support the following Subprocess and Business Requirements:

AW-04

F.3.3 Design Description

Inputs

The Department of Education will receive inquiries through all channels, including telephone, facsimile, mail, and electronic.

Process

- Inquiry is received through phone call, e-mail, mail, Internet feedback, or fax
- Web sites are recommended
- Rankings are developed on customer satisfaction and accuracy of information

Outputs

The Department of Education outlines the following reporting requirements

- Should be able to access models of various simulations of financial aid that may include cost of attendance, student financial aid information, estimated salaries, and state aid program information.
- Should be able to present in both text and graphics
- Should be able to generate all reports on demand (in cases where reports do not generate automatically)

The Web sites will produce the following reports:

- Simulations of financial aid packages and financial options
- Long term debt management plans

F.4 FAFSA Web Updates

F.4.1 Overview

FAFSA on the Web is designed to make it easy for anyone who wants to do away with excess paper work, and submit FAFSA electronically to Student Financial Assistance. Any FAFSA received by any other mode (viz. mail, fax, etc.) is also entered into the system after it is received. The FAFSA application is then checked for completeness and the information validated against other government databases. Once the information in the FAFSA is authenticated, an Expected Family Contribution (EFC) is calculated for the applicant based on the family's financial status. This EFC is communicated to the school (and in turn to the applicant) as a response from the system, once the application is accepted into the system.

This task deals with three different initiatives. The first initiative is to provide a capability for the applicant to make changes to an accepted FAFSA on the Web, in other words an update capability to an already accepted FAFSA. This could be due to changes in the applicant's input or status or for renewal of the applicant's student aid for subsequent years. The second initiative is to provide for a Spanish version of the FAFSA on the Web. The third initiative is to incorporate board-reviewed changes to the FAFSA form on the Web as and when required. The first initiative will be discussed in this section. The second and the third initiatives may become different tasks, or may be incorporated into same task after further analysis.

F.4.2 Level II Business Requirements

The development and implementation of changes to the FAFSA on the Web support the following Subprocess and Business Requirements:

AA-01 (all requirements)

AA-02 (all requirements)

AA-03 (all requirements)

AA-04 (all requirements)

AA-05 (all requirements)

F.4.3 Design Description

Inputs

The Department of Education will receive FAFSA through different sources including mail, fax, and the Web. All FAFSA will be entered into the system at the SFA.

Process

1. FAFSA from all different sources will be accepted by the SFA.
2. All FAFSA information is input into the system for those that came through the conventional channels (mail, fax, in person, etc.)
3. The application data is authenticated against various government databases.
4. If application data failed validation, or if the data was not complete, the application is rejected.
5. If the application was complete and the data validated, then an EFC is calculated based on the family's financial status.
6. The EFC is communicated to the school (and applicant).
7. For renewal of aid, or for making corrections to applicant data on the accepted FAFSA, the Web version of the FAFSA will bring up the data furnished by the applicant earlier, and accept changes to it.
8. EFC is recalculated and communicated to the schools (and applicants).

Outputs

The Department of Education outlines the following reporting requirements

- Should be able to update FAFSA data on the Web any number of times, and get a Student Aid Record for each transaction if required.
- Should be able to present Aid options based on the family EFC.
- Should be able to present in both text and graphics.
- Should be able to generate all reports on demand (in cases where reports do not generate automatically).

F.5 General Ledger Management

F.5.1 Overview

SFA is in the process of implementing a new Financial Management System (FMS) to modernize financial management processes. The SFA FMS will consist of Oracle Federal Financials as the core FMS, supplemented by interfaces with other SFA systems, external systems, and other integrated COTS packages. The FMS must comply with the Joint Financial Management Information Program (JFMIP).

A general ledger management system is required as a core module of the FMS. The general ledger is the highest level of summarization and must maintain account balances by the fund structure and individual general ledger accounts established in the core FMS. The general ledger management system will be implemented using Oracle Financials – Federal, a commercial off-the-shelf (COTS) application that supports federal financial management functions in accordance with JFMIP.

The general ledger is supported by subsidiary ledgers at various levels of detail. These subsidiary ledgers may be maintained within the core FMS or in other systems. For example, detailed property records supporting the equipment account in the general ledger might be maintained in the Enterprise Services facilities system. All transactions to record financial events must post to the general ledger regardless of the transaction origin. Therefore, interfaces will be developed to take transactions from other SFA systems and external systems and to incorporate them into the general ledger.

F.5.2 Level II Business Requirement Specifications

The following business requirements are supported by the development and implementation of the FMS general ledger:

FS-02 – General Ledger Management (all requirements)

F.5.3 Design Description

Inputs

Transactions will be developed using a general ledger account structure in accordance with the U.S. Government Standard General Ledger (SGL) and transaction edit and posting rules to record financial events[1]. On-line transaction processing modules and batch interfaces will enforce the use of the SGL, editing and posting rules prior to

[1] OMB Circular A-127, "Financial Management Systems", requires implementation of the SGL at the transaction level.

incorporating a transaction into SFA's Oracle Financials database. Transactions that fail edits will be placed in suspense files for editing/correction. Transactions received in a batch interface will be stored in an audit trail accessible both on-line and through reports.

Since Oracle Financials is a COTS application, database structures are already designed in Oracle. Most customization of the data will be in the form of establishing the SFA chart of accounts. Level IV of the design will address the actual database structures and any required customization.

Process

There are three subprocesses: general ledger posting; accruals, closing and consolidation; and general ledger analysis and reconciliation. Each process is summarized below.

F.5.4 General Ledger Posting

This process records financial transactions in the general ledger using double-entry accounting. The posting rules that specify which accounts to debit and credit for each transaction are defined in the Standard General Ledger (SGL) process of the core FMS function.

1. A transaction must be posted. The transaction could be any type of financial transaction including balancing transactions using SGL control accounts

   If the transaction is created on-line

2. The user creates one or more records against a debit account
3. The user creates one or more corresponding credits to complete the transaction
4. The system allows the user to create a transaction that will post to a previous accounting period
5. The system edits key fields, checks the balance on transaction quantities, checks for duplicate transactions, and checks fund availability, account structure and tolerance levels between related transactions (e.g., between an obligation and its related accrual)
6. If the transaction fails any edit, the system notifies the user and does not save the transaction until it is corrected
7. The system updates account balances and stores the transaction

   If the transaction is received via a batch interface

8. The system edits key fields, checks the balance on transaction quantities, checks for duplicate transactions, and checks fund availability, account

structure and tolerance levels between related transactions (e.g., between an obligation and its related accrual)

9. If the transaction fails any edit, the system places the transaction into a suspense file
10. The system updates account balances and stores validated transactions

F.5.5 Accruals, Closing and Consolidation

This process creates accrual transactions and closing entries needed at the end of a period (month or year) for reporting purposes. It also controls and executes period-end system processes needed by the system to open a new reporting period, such as rolling forward account balances or reversing certain year-end entries. This process supports the preparation of consolidated financial statements by identifying information needed in that process.

1. At period end (month or year), user selects trial or permanent balance from the menu
2. System balances accounts and subaccounts and prints results

If it is a trial balance

3. User enters adjustments as needed (see **General Ledger Posting** above)

If it is a permanent balance

4. System generates required transactions (year-end only)
5. System rolls over SGL account balances
6. System generates recurring accrual entries and reversals in the next fiscal period
7. If it is year-end, the system administrator rolls over system tables to the new fiscal year

F.5.6 General Ledger Analysis and Reconciliation

This process supports the control functions of the general ledger. The core FMS provides information for accountants to use in determining that amounts posted to general ledger control accounts agree with more detailed subsidiary accounts and in reconciling system balances with financial information contained in reports from Treasury and other agencies.

1. The user runs a comparison report between amounts in other components of the core FMS and the related accounts in the SGL
2. For each control account, the system generates and prints the balance

3. If the core FMS has related information in other system modules, the system calculates and prints related balances
4. User annotates out-of-balance accounts
5. User enters adjustments using control accounts as needed (see **General Ledger Posting** above)

Outputs (not all inclusive)

- Trial Balances
- Out of Balance Reports
- Reconciliation Reports and Queries
- Balance Sheets
- Income Statements
- Consolidation Statements
- Prior Year Adjustments
- Audit Trail Reports
- Summary Repayments
- Drawdowns On Aid Programs
- Other

F.6 Digital IDs Registration

F.6.1 Overview

In electronic commerce, organizations commonly secure the communication medium through the use of private leased lines and networks. This is prohibitively expensive and, in some cases, unfeasible for potential parties to a transaction.

For the Internet to offer an inexpensive and ubiquitous solution, the focus must be on information security and identify authentication. Digital IDs registration offers students a private environment to renew and or register their application information using electronic mechanism.

Digital IDs for students' registration are a common technique used to control access to sensitive information or transactions for application registration and updates to registration forms.

F.6.2 Level II Business Requirement Specifications

The requirement AA-02 is supported by the Digital IDs.

F.6.3 Design Description

Inputs

1. Digital IDs reside securely in e-mail software
2. Digital IDs shall allow you to encrypt your communications
3. Digital IDs shall allow you to digitally sign your e-mail
4. SFA receives completed applications from students via electronic channel over the Internet with student electronic digital id signature

Process

1. Digital IDs shall provide student authentication
2. Digital IDs shall provide student message and data Integrity
3. Digital IDs shall provide student information confidentiality
4. SFA shall validate the electronic digital signature before allowing access to the student information

Outputs

1. Digital IDs shall provide capability to securely installed on the smartcard for added security as well as portability
2. Digital IDs shall provide capability to securely installed on the user hard drive

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G. Requirements Management

The purpose of Requirements Management is to establish a common understanding between SFA and the Modernization Partner of the SFA's requirements that will be addressed by the Modernization Blueprint. Requirements will be added, deleted, and modified throughout the life cycle of the project and a defined process is essential to track and maintain them.

Requirements Management involves establishing and maintaining an agreement with the Modernization Partner of the SFA's requirements for the Modernization projects. The agreement covers both technical and non-technical requirements. The agreement forms the basis for estimating, planning, performing, and tracking of the Modernization projects' activities throughout the system development lifecycle (Figure IV.G-1).

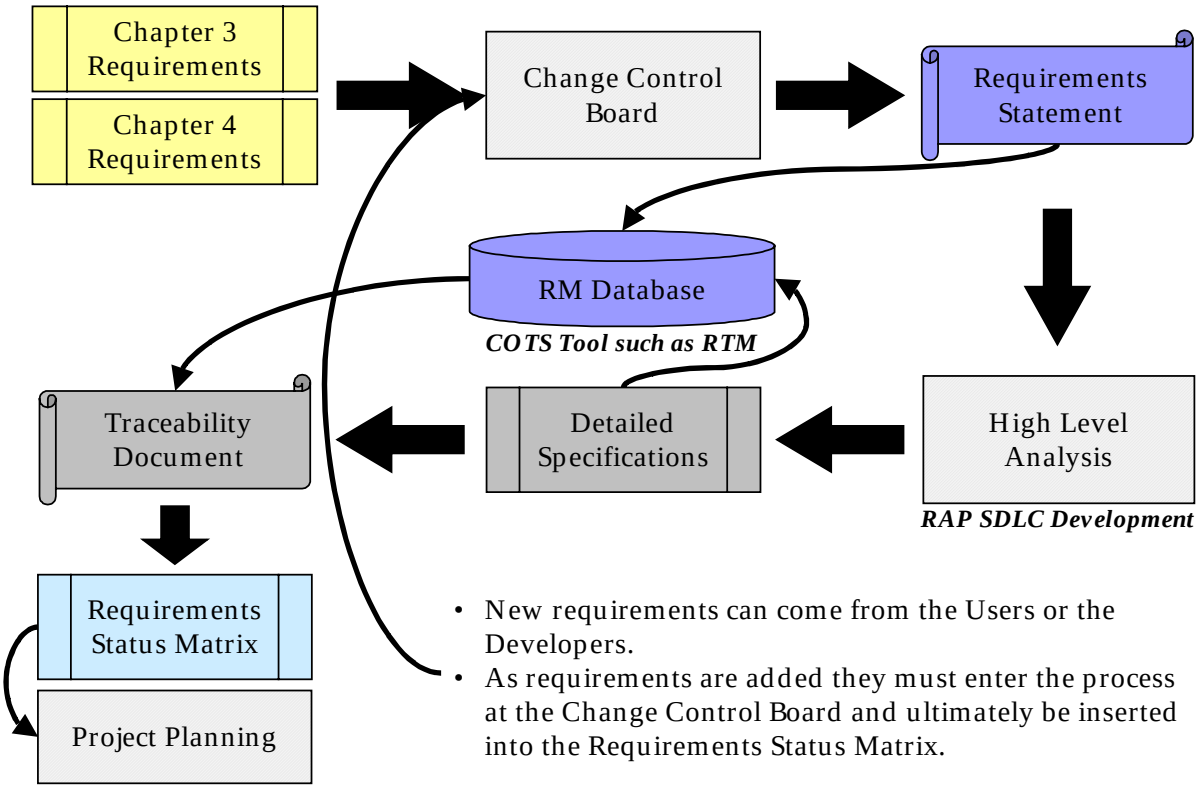


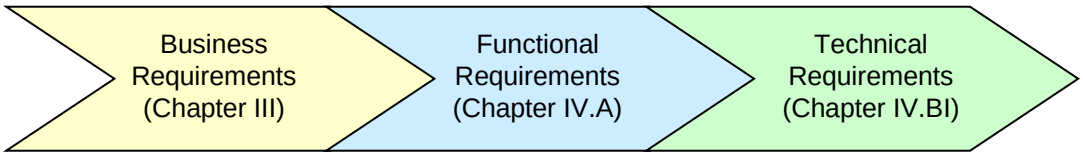
Figure IV.G-1. Requirements Management Cycle

The goals of Requirements Management are:

- System requirements allocated to software are controlled to establish a baseline for software engineering and management use.
- Software plans, products, and activities are kept consistent with the system requirements allocated to software.

Requirements management provides traceability for SFA throughout the life cycle of the project. Requirements may not be completely specified at the beginning of the project and will be continuously redefined. The tracking process will document the requirement changes and ensure that all identified requirements have been accounted for at the end of system implementation.

Another dimension to traceability is to ensure that the business requirements (Chapter III) are traced to the applications that are built. This is done by incorporating the processes and subprocesses from the Functional Architecture (Chapter IV.A) into the Technical Architecture (Chapter IV.B). The Functional Architecture is derived directly from the business requirements. Thus, traceability from the applications, back to the business requirements and the Functional Architecture, is ensured.



H. An Approach: Enterprise Applications Development

Model-Based Development and Component-Based Development (CBD) (Figure IV.H-1) are two approaches to information systems development that will be used to modernize SFA business systems.

Model-based development utilizes diagrams to define various aspects of an information system including the business processes, the supporting data, the user interface, and the supporting logic. Completed models are used to generate the database structure (data definition language) and the executable code that runs on both the client machines and the server. The Rational Rose suite of tools, and the Enterprise Application Integration (EAI) toolset, will be used for model-based development. The diagrams in the Rational tools cover all aspects of the systems development life cycle (SDLC) from planning to implementation. The benefit of using Rational tools is that they target various implementation environments (e.g., database management systems such as ORACLE, DB2, Informix, and operating environments such as UNIX, MVS, and Windows). The EAI toolset provides the technology services that enable the sharing of processes and data of disparate systems to support end-to-end business processes. The GUI application for the EAI toolset enables the generation of mappings that detail the intercommunications between systems, from analysis to implementation. The benefit of using EAI tools is that they will allow SFA to integrate new net-centric applications with existing back-end systems, while at the same time, providing a means to migrate away from reliance upon the legacy systems.

CBD is an approach to developing applications based on the assembly of pre-built parts—components. A component is an independent deliverable “package” of software operations that can be used, along with other components, to create a business system. Components are developed specifically for reuse purposes. Components are encapsulated in that their implementation can be changed without impacting the consumers of the component – another component or an application utilizing the component. Components are also replaceable by other components that offer (at least) the same set of operations without having to re-deploy the application.

The EAI toolset will utilize software components to provide the enterprise application integration that will transform the SFA stovepipe systems into a re-useable, scalable Service-Oriented-Architecture (SOA). A SOA enables reuse and standardizes architecture design by leveraging shared libraries of logic and data among systems and users. The business rules, integrity checks and sequence of steps associated with a business function are implemented in a logical black box (a service) that can be invoked by any of the participating applications. New clients can reuse old services, and new business processes can reuse elements of old business processes.

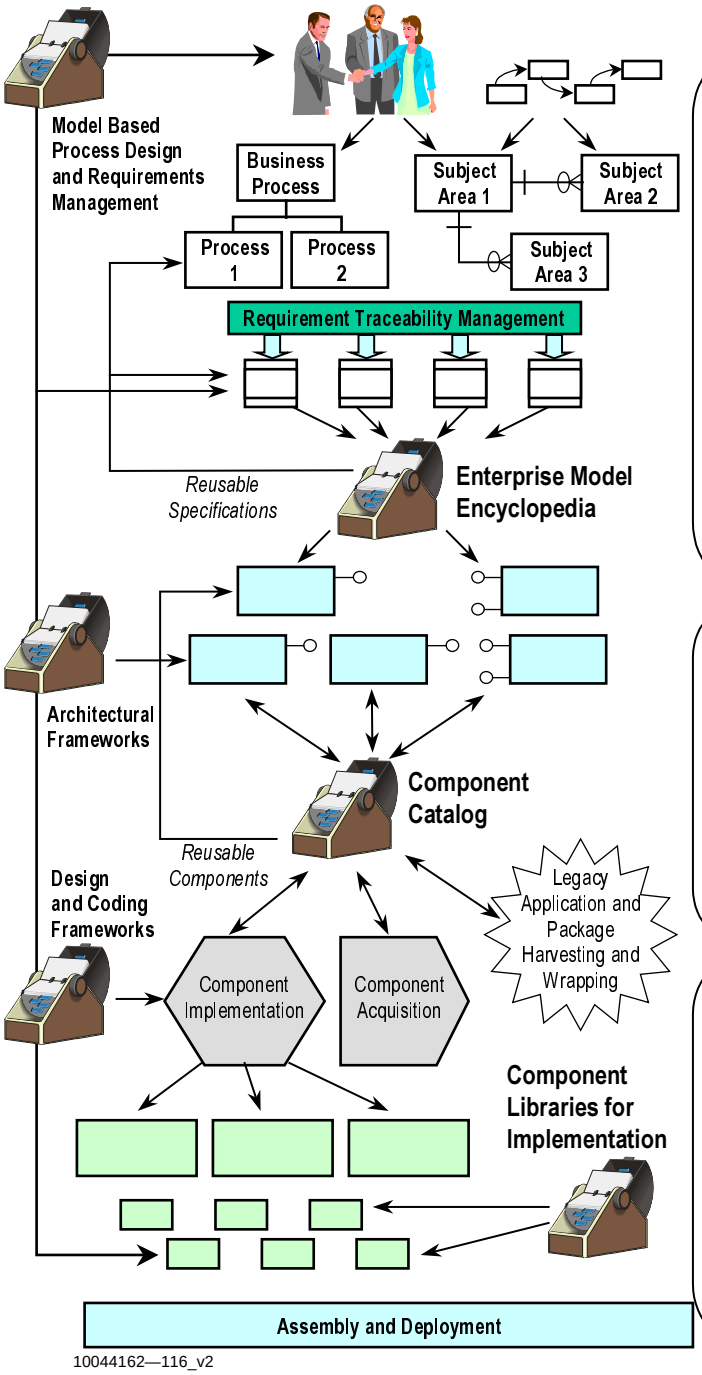
By building a SOA and utilizing a message-based backplane and event-driven processes, interfaces are implemented through a standardized integration layer, eliminating the need to develop hard-coded customized interfaces. The message-based backplane enables the use of a defined message format to exchange information

between applications and the event-driven processes enable processes to be triggered based on a business or system event.

Instead of wrapping all or part of a legacy system, reuse of the existing legacy business logic is utilized through the integration architecture that provides the logic and services to be called upon by any of the integrated systems. The Integration Architecture will be applicable in the following situations:

- Standalone systems (or legacy systems with a minimum number of system interfaces) that perform a small number of distinct business functions that are also performed by other SFA systems.
- Extending the legacy system interface to such technologies as the Web.
- Standardizing a legacy system's interface to other systems.

Increasing acceptance of enterprise network computing will call for greater adoption of the thin-client approach to application design, utilizing browser-style user interfaces, dynamic servers containing component-oriented business rules, and performing inter-system communication via the Integration Architecture services. Components that must be deployed on the client will be deployed by the technique of downloading as needed. In this way, deployment to the business units is considerably simplified from the traditional install-everywhere approach.



Model Based Process Design:
Business processes and user requirements are modeled. They may also be recorded to any level of detail. The user requirements and process models are analyzed to ensure they are rigorously specified, and to push the business models into a degree of detail ensuring the requirements are sufficiently well understood in describing the SFA systems and applications.

Component Based System Design:
Elements of the domain modeling will be used to define the overall architecture of the applications, which will be translated to components and their related interactions.

Assembly and Deployment:
The overall architecture of the collaborating components is finalized and generalized component assembly tools, which provides component linking. The SFA applications can be initiated to implement the required components.

Figure IV.H-1. Example of Model-Based Development via CBD

The main benefits of using a CBD approach to application development and an EAI toolset to enterprise application integration are:

- **Reduced time to delivery**—Components are based on re-use. During the analysis phase, development teams consult component catalogs to identify existing components that support required functionality, reducing the need for new development. For functionality that does not yet exist in the component catalog, business requirements that lend themselves to componentization can be identified during analysis, and components can be designed and developed that can be used across the enterprise. With these components developed, EAI tools utilize them to improve the productivity of integration resources, increasing SFA's capacity to respond to the changes required to support new and improved business processes, ensuring delivery of new services to customers and reducing the development lifecycle.

- **Reduced development costs**—Reuse of components allows developers to focus attention on developing new, unique functionality. Moreover, development of components can be outsourced.

- **Increased productivity**—Development teams focus more on assembly, less on development. New developers can be productive sooner. EAI tools will enable SFA to modify and develop software interfaces in considerably less time than with traditional methods. Benefits will be realized more quickly by implementing changes in value-based phases rather than forcing long, drawn-out 'big bangs' that often are accompanied by significant aftershocks – including lack of value realization.

- **Reduced risk of problems**—Since prefabricated components are pre-tested and certified, valid interactions are well specified and documented. EAI tools will also enable SFA to focus on obtaining technical skills in a single technology tool versus having to manage a broad set of capabilities across a wide spectrum of custom integration solutions. This significantly reduces SFA's training, capability development, as well as maintenance costs.

- **Greater consistency in usage**—Use of components provides the opportunity to standardize requirements that are implemented in multiple applications. For instance, a component could be developed to calculate interest on a student loan. Multiple applications can consume this component, ensuring consistent interest calculations across applications.

- **Opportunity for enterprisewide parallel development**—An enterprise-level CBD strategy provides the ability to identify functionality for component development. Additionally, independent development teams can be deployed to develop the components. The EAI tools also allow for parallel development, enabling multiple developers to construct integration services between systems.

- **Improved Customer Service** - EAI tools will improve business processes for delivering information to customers (students, schools, and financial partners) and enable effective collaboration with partners who also serve SFA's customers.

Improvements in sharing information with partners will increase the speed at which SFA can provide their customers access to accurate and timely data. Availability of information from a number of complex heterogeneous applications also empowers SFA to provide effective customer self-service, improving customer satisfaction.

- **Improved Asset Utilization** - Custom developed legacy systems often cannot easily be modified, and therefore the capabilities of those systems are not fully realized because they are not integrated with other systems. EAI tools will enable SFA to leverage legacy application functionality by using “non-invasive” integration techniques. EAI tools have the flexibility to allow integration without making modifications to legacy systems.

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I. SFA Enterprise Model Management

An enterprise model is a representation of the entire business in terms of its processes, the underlying data that support the processes, and the business rules that govern the business processes. Enterprise models are used to manage data standardization and systems integration efforts.

The Modernization Blueprint incorporates the use of enterprise models as a mechanism for achieving Blueprint objectives. Effective use of enterprise models requires a model management strategy and standards for the contents of the models. The following subsections provide an overview of the model management strategy and enterprise standards for implementing the Blueprint.

Model Management Strategy

An enterprise model management strategy defines the specific enterprise models that will be developed and how they will be used to manage the standardization and integration process. Key aspects of the SFA model management strategy include:

- Development of enterprise models using Rational Rose that contains standardized objects (components of the system such as processes, data structures, windows, and procedures).
- Use of standardized objects in applications development projects.
- Centralized organizations to manage the standardization process through configuration management procedures.
- Enterprise standardization processes that are both proactive (seeking to identify and standardize existing enterprise objects) and reactive (working with projects to identify and approve new standardized objects).
- Initial implementation of standardized data objects at the system level with an eventual cutover to an integrated database.

The models will be stored in a central repository that organizes models so objects in one model can be shared with other models. Sharing is accomplished through a migration process that establishes inheritance between models. Inheritance indicates an object in one model is equivalent to that in another. This equivalence allows for changes to an object in one model to be inherited into the other.

Figure IV.I-1 depicts the SFA model management strategy.

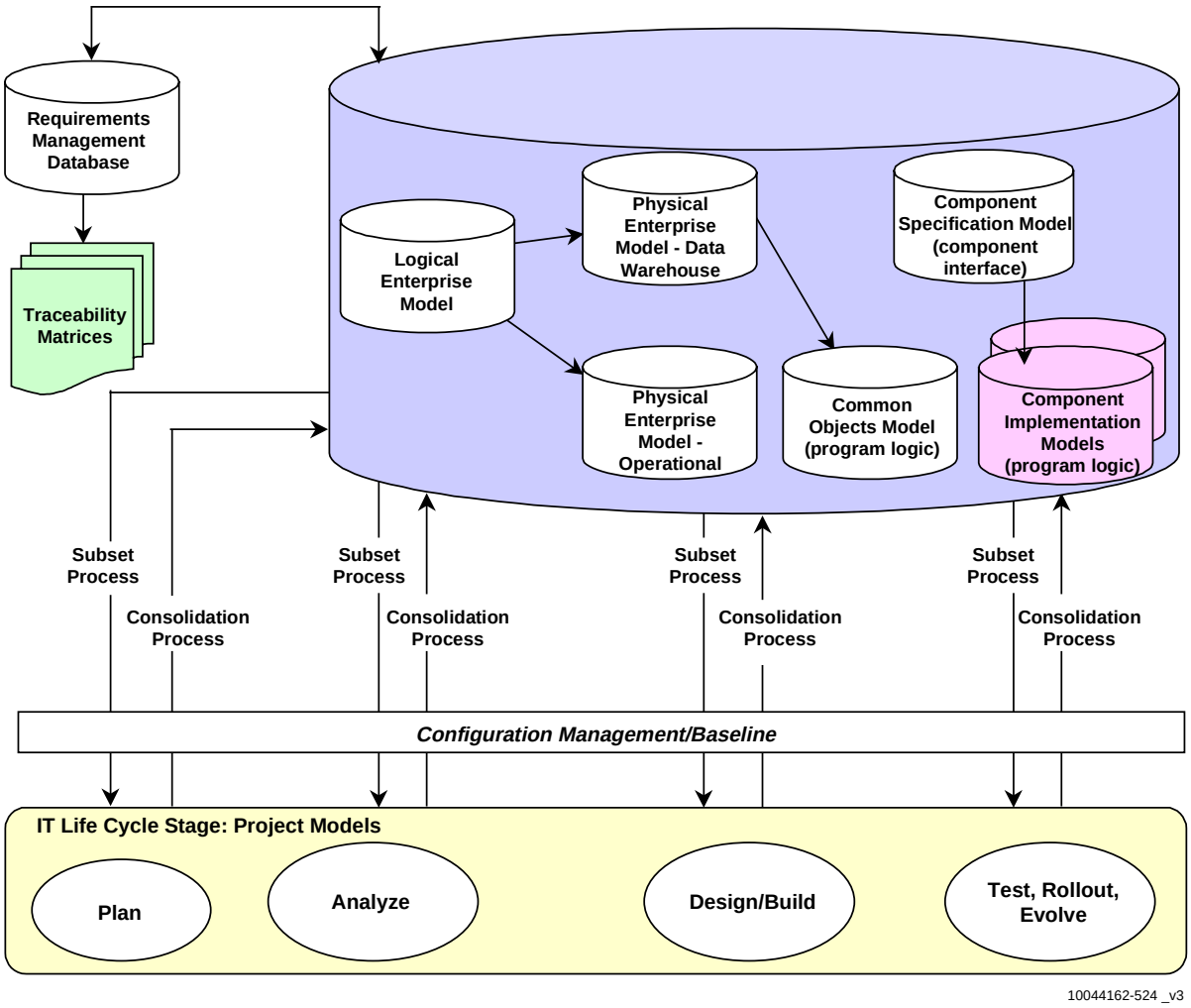

Figure IV.I-1. The Enterprise Encyclopedia

Enterprise models include:

- The **Logical Enterprise Model (LEM):** All the data required by SFA business processes from a logical enterprisewide perspective (independent of the implementation environment). When it is completed, it will contain only standardized data objects that have been normalized to third normal form (3NF), has fully defined metadata, and adhere to SFA standards.
- The **Physical Enterprise Model – Operational (PEM-OP):** All the data implemented in SFA transaction-based applications and the related business processes. When it is completed, it will contain standardized data objects (originating from the LEM) that have been implemented in SFA applications and will be used to generate SFA databases for transaction-based systems.

- The **Physical Enterprise Model – Data Warehouse (PEM-DW):** The physical model that represents all the data implemented in SFA data warehouses. It is used as a central definition of the data that support these systems and will be used to generate SFA data warehouse-based databases.
- The **Common Objects Model – (COM):** Program logic for reusable design objects that are shared among business systems. It also provides templates for a common user interface.
- The **Component Specification Model (CSM):** The interface definitions (specification) for components.
- **Component Implementation Models (CIM):** The actual logic that implements a component.

Initially, baseline enterprise models will be developed for storing objects representing standardized processes and data across SFA. The models will be created using top-down analysis and reverse engineering of data in existing legacy systems. Reverse engineering of existing legacy systems involves taking the definitions of data structures in that system and placing them into the enterprise model using automated tools designed for this purpose when applicable. Objects in these enterprise models will be used to "seed" project analysis models by a migration process that establishes the initial inheritance.

Configuration management (CM) procedures control the migration process between enterprise models and project models. CM on enterprise models will be accomplished through an enterprise team that includes Data Administrators (DA) to manage the LEM; Database Administrators (DBA) to manage the PEMs; and Integration Administrators (IA) to manage the COM, CSM, and CIM. They are central resources that have enterprise functions (e.g., development of standards, approval of standard objects, management of enterprise models) and project functions (e.g., participation in appropriate stages of the lifecycle).

Enterprise staff is "matrixed" to projects on a part-time basis during various stages of the SDLC (Figure IV.I-2). They act as full project participants, but retain a part-time status at the enterprise to perform enterprise functions. This approach is designed to reduce the tendency toward championing project-level goals and objectives at the expense of enterprise goals and objectives. This approach also ensures enterprise staff retains current knowledge of enterprise developments.

Enterprise staff assists projects to select all applicable standardized objects from enterprise models. Objects from the LEM and PEM are selected to create an initial planning or analysis model. Project teams review these objects and make recommendations to modify them or to add new objects through a formal nomination process. Only approved objects can be migrated back to an enterprise model, and migrations to an enterprise model are performed by enterprise model managers only.

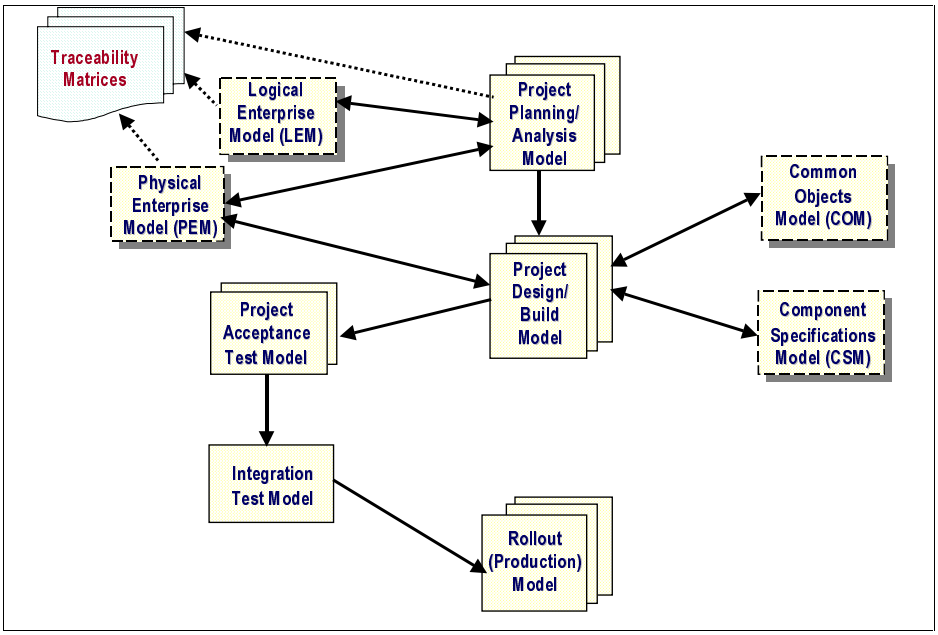

Figure IV.I-2. Design/Build Phases of SDLC

When the project moves to the design/build phases of the SDLC, the planning/analysis model is copied to the design/build model. This model is augmented with additional data objects (from the PEM), standard user interface templates and reusable program logic objects (from the COM) and specifications for component interfacing (from the CSM).

To nominate a new object or modification to an existing object, the project submits a nomination package to the enterprise staff. Enterprise staff performs a quality assurance check by reviewing objects against enterprise requirements and for adherence to enterprise standards. They also arrange a cross-functional review with stakeholders as required. If there are impacts on systems already using the object, enterprise staff will assess the impact and, if approved, develop an implementation strategy. If a change is approved, the enterprise model manager migrates the object from the project model back to the enterprise model using a consolidation process.

Traceability matrices are another principle feature of the model management strategy. There are three types of traceability matrices: a data matrix between logical and physical data objects to track the implementation of standardized data; a requirements matrix between enterprise objects (processes, data, and logic objects) and requirements; and a logic matrix between common objects/components and the systems that have implemented them. The matrices are used to verify requirements and plan for and/or track the implementation of standardized objects.

Standards for Enterprise Models

Enterprise standards include naming conventions and metadata standards for model-based objects. The following standards will be developed for the Modernization Blueprint:

- **Enterprise model structures:** Provides standards for creating and naming subject areas for grouping related types of data and functions for grouping related business activities.
- **Standardization naming conventions:** Provides a naming convention to track data and process objects through the standardization process.
- **Logical data standards:** Provides logical naming and metadata standards for objects that are represented in the logical enterprise model.
- **Technical design standards:** Provides naming standards for physical tables, data elements, and indices that are contained in physical enterprise models used to generate the database.
- **Standards on procedures to implement standardized logic:** Provides naming standards for the procedures, inputs and outputs to the procedures, and system documentation standards.
- **Standards for logically deleting objects in a project model:** Provides naming standards for a logically deleted object, which is a subject area, entity type, attribute, relationship, function, process, or procedure logic originating in an SFA project model that exists in an enterprise model but should be deleted. The logically deleted object is identified in the project model and migrated to the enterprise model where it is physically removed.

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J. An Approach: Enterprise Configuration Management

A configuration management (CM) approach describes the vehicle used to select, identify, and name configuration items (CI). A configuration item is an aggregate of hardware and/or software, developed and managed as a single item. In addition, this approach establishes some guidelines and/or framework for the enterprise CM activities.

The focus of this approach is those projects whose architectural components influence or impact multiple SFA projects/programs functionally and/or financially. Because of these guidelines, if a proposed SFA implementation impacts the enterprise (architecturally or financially), it falls under this level of configuration management. Figure IV. J-1, SFA Enterprise Configuration Management Approach, outlines the criteria and process steps in this approach.

Implementing the Modernization Blueprint will require significant control to be exercised in coordinating the releases of the various products and services. This management and control activity begins when the components that make of the released products have fully been identified and inventoried prior to building/deploying the services.

Configuration Management Strategy

Effective management of the SFA architectural components requires a configuration management strategy. The following subsections provide an overview of the configuration management strategy and enterprise standards for implementing the Blueprint.

The configuration management process exists throughout the full system development life cycle. It can be broken down into six process steps They are: requesting change, planning for release, managing configuration items, controlling the migration of configuration items, installing the configuration items, implementing the modified configuration items in a controlled manner. The following diagram describes the required interactions and responsible organizations involved in this process.

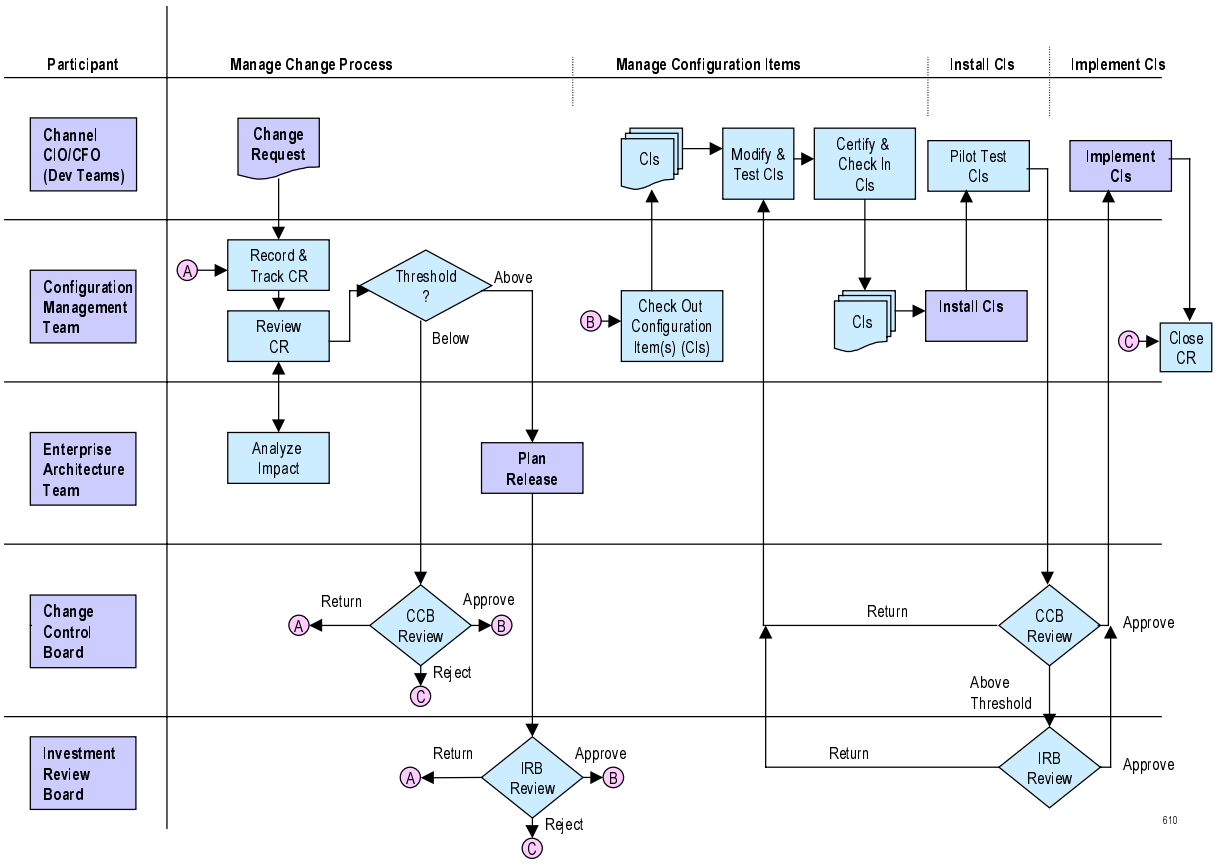


Figure IV.J-1. SFA Enterprise Configuration Management Approach

An enterprise configuration management approach defines the specific processes that will be developed and how they will be used to manage the standardization and integration process. Key aspects of the SFA configuration management approach include:

- Change Request - All strategic and/or enterprise level change requests are made in accordance with the business requirements of the Investment Review Board. Change requests can be initiated by SFA business area (i.e., the SFA Channels or the CIO, Modernization Partner, legacy vendors) with the assistance and participation of the enterprise architecture team. The configuration management team is responsible for recording and responding to the change requests.
- Change requests that are below threshold criteria require review, support and a decision by the CCB. Upon analysis and agreement by this group the configuration management team will respond to the change requests submitted. Change requests that are above the threshold criteria will be analyzed via the plan release process. If a “go” decision is made the change is assigned to an existing development team to begin the process of managing the configuration.

- Plan Release - The plan release process begins with the enterprise architecture team defining the release objectives and if necessary, developing the business case/cost benefit analysis associated with this proposed release. The enterprise architecture team attempts to assign the change requests to a specified release. The accumulated data is packaged for delivery to the Investment Review Board/Decision Support Group (IRB/DSG) for further definition of the proposed release justification and contents. The proposed release (change request(s), supportive documentation) is sent to the IRB/DSG for deliberation. Upon approval of the change request(s). The last step in this process is to transition the documentation from the CM team to a new IPT or development team to begin the process of managing the configuration.

- Manage Configuration Items - This section of the configuration management process combines the concepts of managing the configuration items and migrating them throughout the system development life cycle. They have been bundled in this streamlined approach to minimize the number of organizations involved to successfully navigate the manage configuration process.

This process depicts the day-to-day activity of the individual application development teams. During the development life cycle, the development team members will work with their CM coordinator/configuration management team in accessing the individual configuration items to conduct their development efforts. The process is as follows: the configuration management team has control of the configuration items (baseline). In order to work on them, the development team issues a request via the configuration management tool, to check out a specific version of the configuration item. The tool will keep track of who has the configuration item checked out and will not allow anyone else to check out the same version. The development team will work with these configuration item(s)/modify them. At the end of the development effort, the configuration management team will be notified that an update to the release configuration is necessary. The configuration management team confirms the request with the development team. As part of this process, an audit trail is created. It will contain the modification time and date, the author's name, and the reason for which the modifications were carried out. The configuration management team will then check in the updated configuration items. The CM team creates a new baseline and updates the release configuration documentation.

- The migration step in this process demonstrates how configuration items are maintained by the configuration management team throughout the system development life cycle of the development teams. In each phase of development, CM maintains strict baseline control of the application and infrastructure environments. Upon the conclusion of each phase, part of the exit criteria involves creating an interim baseline, generating configuration audits, verification and review, and archiving the previous one (for disaster recovery purposes). In addition, this process initiates tracking and monitoring of configuration item (status accounting). Note if the configuration items attempting to be migrated encounter errors, problem reports/trouble tickets will be issued. If they are rated as severe and/or critical to meet the functional requirements, the configuration

items will not be migrated. Thus another exit criterion that must be met is no high, severe or critical problem reports can be outstanding. At the conclusion of the product-testing phase, configuration management team creates a final baseline version of the release. All previous interim baselines can be deleted at this point.

- Install Configuration Items - The configuration management team ultimately has the responsibility of validating and certifying not only the software being developed (and maintained), but they are responsible for certifying the environment in which the software was developed and tested meets the standards established by the Department of Education and the enterprise architecture team. This process specifies how the configuration management team only installs or coordinates the installation, of configuration items verified by the development teams and/or the virtual data center. The change requests that initiate the inclusion of new/updated configuration items into the CM controlled environment are critical to this process. Without them and verification from those requesting them, no updates will be made to the CM environment. After validation, CM will install the configuration items, but before these items are actually included in a baseline configuration, CM initiates a testing and certification activity. If this activity is in support of production testing, it will be performed by the quality assurance organization (with independent verification and validation contractor support). Only after passing all the tests and being certified, will the configuration items become included in the baseline.

- Implement Configuration Items - An implementation workplan and schedule are defined, then submitted to the enterprise architecture team for verification of requirements and standards adherence. A configuration control board review is convened to discuss the validity. Upon approval the virtual data center is tasked with performing the installation and testing. The configuration management team and quality management organization are called on to validate the implementation. They will utilize an independent verification and validating (IV&V) testing approach to validate the release. The efforts of the IV&V contractor will be coordinated with CM and the quality assurance (QA) organization. Together, independent testing will be performed by the IV&V contractor. The results will then be verified by the QA group.

K. An Approach: Enterprise System Integration and Testing

This approach identifies the need for an enterprise system integration and testing function that will maintain focus on the overall technical and functional objectives of the program. This enterprise system integration and testing function will also provide the continuous guidance needed to support the delivery of SFA's targeted business capabilities throughout the life of SFA Modernization Blueprint. Through rigorous system integration and testing criteria, SFA can maintain the integrity and quality of the system components being developed, revised, integrated and/or maintained. If system integration and testing is executed poorly it can result in (1) solutions which do not meet the Modernization Blueprint requirements, (2) incorrectly constructed / malfunctioning solutions, and (3) lost work, hence cost and schedule overrun. This approach will provide the model and guidance for successful integration and testing of products developed for the Office of Student Financial Assistance.

To develop quality applications, it is essential for project teams to follow a well-defined testing strategy. The objective of the overall testing strategy is to ensure production ready, bug-free, quality applications; and to complete as much testing as possible early in the development life cycle.

System Integration and Testing Strategy

The purpose of this document is to layout the testing strategy for SFA projects and to define each of the testing stages. This document will provide a structured testing framework throughout a project's development life cycle. The concepts discussed in this document will focus on laying a testing infrastructure and include a set of proven development processes and the architecture components required to support these processes.

As stated, these processes are intended to ensure SFA delivers quality application systems to their customers/clients. Adherence to these structured testing techniques should provide the following benefits:

- Ensures the application meets client quality expectations, as well as, SFA quality metrics
- Enhances SFA's reputation; SFA will be viewed as capable systems developers who consistently deliver quality in a timely manner
- Assists with maintaining schedules through structured format
- Improve relationships with customers; the clients will actively participate in the testing activities and develop first-hand knowledge of SFA's adherence to quality techniques
- Develop reusable testing materials; provides regression test plans; jump starts subsequent testing efforts

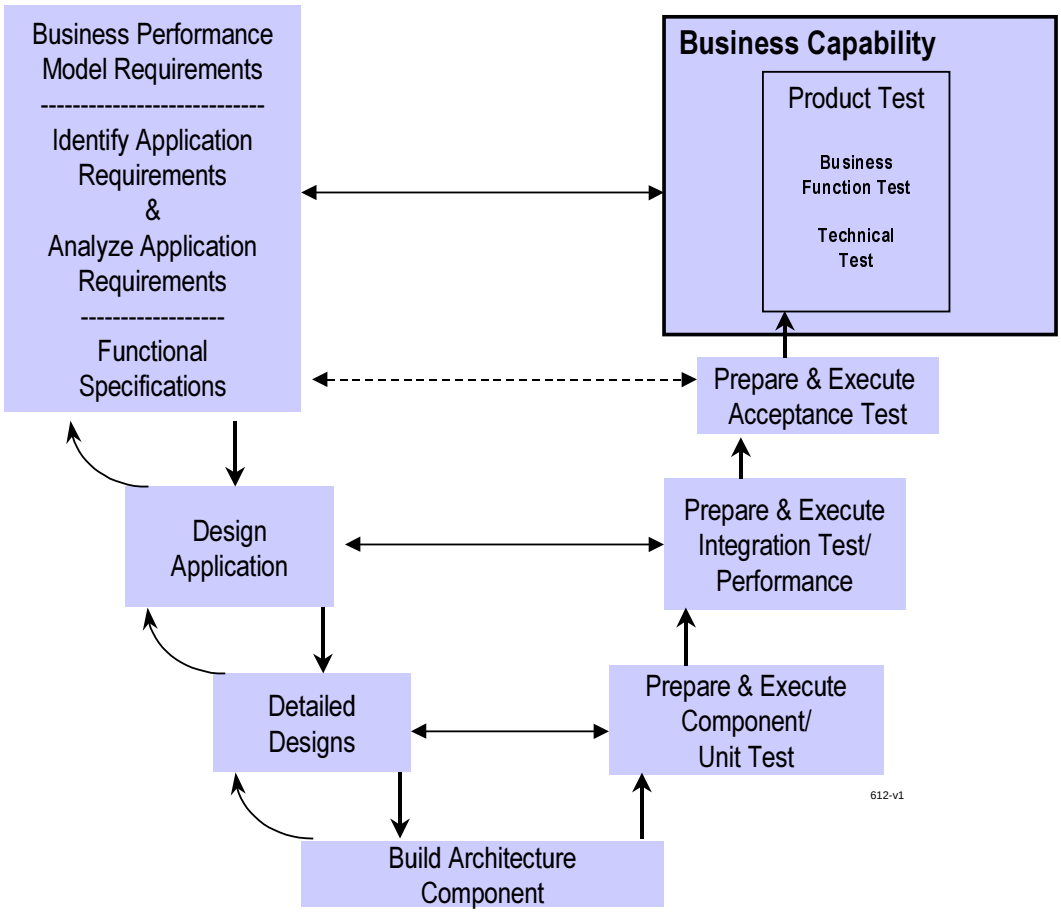
- Increases customer comfort and acceptance of applications by actually involving them in the development/test process; places responsibility for approving testing success on the customer
- Decreases development costs by introducing phase containment through testing segment entry and exit criteria

The key concepts of system integration and testing are the technical principles that a system integration and testing program are based on. This section describes those principles key to the success of an enterprise system integration and testing program at SFA. Phase containment, metrics, test data management and version control are key to managing the test process.

V – Model

The V-Model, which is an industry best practice in the area of solution development, has been adapted for the SFA system development and testing activities. Three concepts that are not unfamiliar are relied upon to explain how this approach will operate in the SFA environment. They, verification/validation/testing, have helped other organizations produce quality solutions that implemented their requirements. The goal is to utilize a combination of these proven methods and best practices to provide a unique yet practical approach to system integration and testing. Below is a representation of the V-Model that is used in this system integration and testing approach.

The V-Model provides a structured development framework, emphasizing building quality in from the initial requirements stage through the final testing stage. The use of the V-Model structures the delivery processes to deliver a quality product because quality is delivered at every point in the process.



Basic Concepts

The V-Model calls for each major deliverable to be ***verified, validated,*** and also ***tested*** for the implementation of each specification. The process of verification and validation is an attempt to catch problems as early as possible in the development life cycle and ensure that the specifications are complete, correct and adhere to standards. Testing ensures that the specifications have been properly and correctly implemented and that the solution meets the business and performance requirements.

Verification checks that a deliverable is correctly derived from the inputs of the corresponding stage and is internally consistent. In addition, it checks that both the output and the process conform to the standards in the project's quality plan. While the techniques used for verification and validation will vary based on the deliverable, verification is most commonly accomplished through an inspection. Inspections involve a number of reviewers, each with specific responsibilities for verifying aspects of the specification package, such as functional completeness, adherence to standards, and correct use of the technology infrastructure. An effective technique of verification is repository validation. Repository validation can be used when a design repository (via development workbenches, CASE tools, or even very strict naming conventions) are used and cross checks can be executed against the repository to ensure integrity of dependencies between deliverables.

Validation checks that the deliverables satisfy the requirements specified in an earlier deliverable, and that the Business Case continues to be met; in other words, validation ensures that the work product, is within scope, contributes to the intended benefits, and does not have undesired side effects. While the techniques for validation will vary based on the deliverable, validation is most commonly accomplished through inspections, simulation, or prototyping. An effective technique of validation is the completion and review of traceability matrices. Validation of the design of the Technology Infrastructure may involve prototyping, while validation of a new organizational design may incorporate survey techniques. Inspections or formal reviews of design documents are frequently used for validation and verification in application design.

How validation is performed depends on the nature of the requirement in the specification document. Certain requirements can be traced directly from the specification to the implementation. In other cases, the specification concerns a quality factor or an emerging property of the implementation. Therefore, a direct comparison is not possible. In this case, validation can be done by analyzing a model of the implementation (for example, analyzing the workflow to ensure that head count does not increase and that cost is reduced), by creating and testing a prototype or by a peer or expert review (as in validating the design for maintainability criteria.)

Testing checks that a specification is properly implemented. Ideally, testing should only uncover problems made in translating the specifications into the product, rather than problems in the specifications themselves. The problems in the specifications themselves should be found as the result of verification and validation of the specifications when they were created.

If a deliverable fails to pass the verification, validation, or testing prescribed for it, it is demoted to the previous stage, or to the stage determined to have caused the defect.

Phase Containment

The objective of phase containment is to identify and correct software defects at their source before they are passed on to a subsequent phase of development or testing. Problems become exponentially more expensive and difficult to fix the later in the development life cycle that they are detected. By concentrating on containment, the cost of fixing problems can be decreased and a quality product delivered. Phase containment is a project management style driven by the need to minimize the number of problems from development to implementation. A goal of phase containment is to minimize gaps and overlaps between the phases of testing while ensuring quality of delivery.

Metrics

Metrics are performance measures that provide a mechanism to track how testing is proceeding compared to plan and how effective the development and testing phases are at containing errors (e.g., the number of problems identified and how long it takes

to fix them). They can also help identify how effective the testing process is at discovering problems and areas that are error-prone. Data gathered through metrics provide input for scheduling subsequent releases and provides information to improve the processes in each phase.

Test Data Management

Test data management (TDM) tools are controls and procedures that manage the quality of tests through the management of test data. The primary objective of TDM is to allow users to share and reuse test data throughout the many phases of testing. TDM provides the capability of creating, managing, maintaining and combining distinct versions of test data. Meaningful test data is essential for successful testing.

Version Control

Version control is an essential tool in managing the development and testing process. The need for managing test data, different versions or releases of SFA and custom code is critical in the successful implementation and testing of SFA.

System Integration and Testing Stages

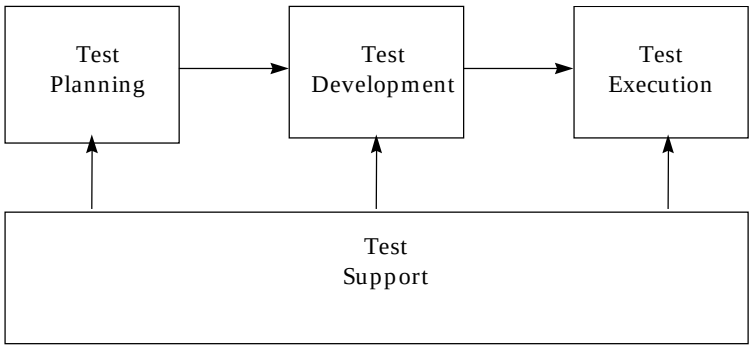
The overall objective of this testing methodology is to ensure that the new systems are production ready. At the end of a project, all team members need to feel the systems are ready to be used in a production environment. The goal of any methodology is to accomplish these objectives in a reasonable amount of time. The following table summarizes objectives and lists an example for each stage of the testing strategy.

Stage	Objectives
Unit Test	• Thoroughly test the units of work by focusing on all possible test conditions. • Test the functionality and technical components within the confines of a single unit of work. • Unit test is a single entity, but many unit tests occur during the testing of an application. • One unit test is performed for each module or program that is written or modified.
Integration Test	• Complete an environment test to insure communications and units of work are working correctly together. • Regression test using plans created for unit test. • Test the application in a simulated production environment. • Test dialog flows. (String Test) • Thoroughly test all possible business scenarios. • Test ties to interfaced systems.
Performance Test	• Ensure that the systems environment will support production volumes, both batch and on-line. • Ensure that the response times for the application are acceptable.

User Acceptance Test	• Test applications in a simulated production environment with other release applications and current production applications using business scenarios that integration systems and workflows. • Test new applications, interfaces from legacy systems, conversion procedures, on-line applications and batch application against requirements defined in the design stage in an integrated testing environment. • Ensure users verify processing is correct.

Each of the stages detailed in this document will have different environmental needs. A discussion about the recommended environments and migration of applications through these environments is contained in the system integration and testing guidelines section.

In order to discuss each of these testing stages in more detail it is necessary to break them into phases. Each of the testing stages has been broken into four phases. This document will refer to these phases throughout each of the stages. The phases are as following:

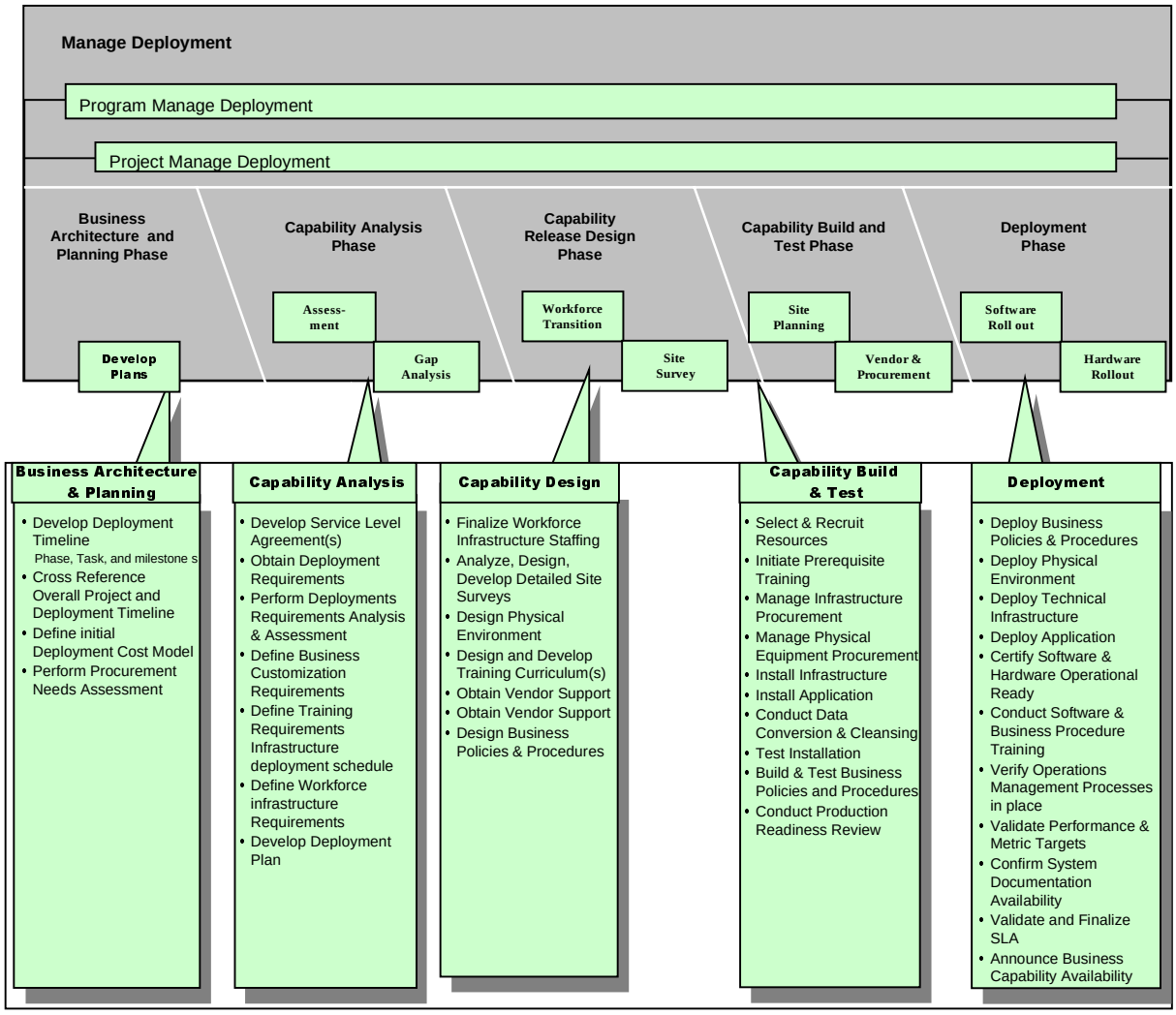


The table below outlines the objectives we are striving for during each stage of testing

Phase	Objectives
Test Planning	• Workplan has been developed. • Teams have been defined and roles established. • Test scenarios and conditions have been planned.
Test Development	• Test scenarios, conditions and cycles have been designed. • Develop the test plan which includes assignments, development and execution dates. • Test model has been developed. • Test scripts (unit, string) have been produced. • Expected results have been defined.
Test Execution	• Unit and string tests are executed • Discrepancies and deficiencies have been annotated. • All scenarios have been executed and results verified. • If testing problems occur, modifications to test model are made.
Test Support	• Technical and functional support personnel are in place. • Testing environments have been established and verified to support the application testing support requirements.

L. An Approach: Enterprise Deployment

This deployment process exists throughout the full system development life cycle. It can be broken down into five phases. They are business architecture and planning, capability analysis, capability design, capability build and test, and deployment. The following provides a discussion of the process phases and key activities involved in each phase.



Business Architecture and Planning/IRB

- This phase involves the architectural planning activities associated with the capability to be deployed. Several activities and organizations are involved in this particular phase. The assigned deployment lead(s) work extensively with the overall program/project management team to develop the project plan (which includes the deployment tasks). In addition, program costs estimations and resource needs, are outlined. Listed below are a representative number of

deployment tasks that should be considered during this planning stage. In particular, tasks that have IRB implications should to be included. They will need to be addressed as soon as possible. Use this list as a start for your planning checklist.

- Develop Deployment Timeline
- Cross-reference Deployment and Overall Project Timelines
- Define Initial Deployment Cost Model
- Perform Initial Deployment Procurement Needs Assessment
- Coordinate vendor equipment/services delivery
- Coordinate vendor installation and delivery
- Coordinate vendor facilities build/modification

Capability Analysis

- This phase involves the gathering and analysis of deployment requirements associated with the workforce, physical environment, business processes, application and technology infrastructure. In addition, a determination as to whether additional information/equipment/personnel are required for the approaching capability deployment is performed as well. Listed below are recommendations for tasks that would take place during the capability analysis phase.
- Develop Service Level Agreement and Performance Metrics

  Work with the SFA Channel and eCommerce Application representatives to obtain/define the service level agreements. Performance metrics should be defined. Agreement should be reached with the SFA deployment team representatives.
- Obtain Deployment Requirements
- Requirements specific to deployment issues/concerns should be collected and assigned for resolution.
- Perform Deployment Requirements Analysis/Assessment

  These activities include analysis of the current environment in terms of technology, process, people, and sponsorship. The deployment team collects this information through data interviews and gap analysis surveys. The assessment activity should last just long enough to complete the collection the information. These activities could be coordinated with any technical infrastructure assessment being planned.
- Define Business Customization Requirements

This entails tailoring the deployment plan to the specific environment to include technology, process and people. The results of the initial assessment and the technical infrastructure assessment together can be used to modify the infrastructure requirements, process designs, and organizational designs. Note change management/organizational change resources may be an invaluable resource for this activity. The result of this task would be defined benefits realization and defined measurements.

- Define Training Requirements

  This includes applications, system software, and vendor training for any custom off the shelf (COTS) packages.

- Define Workforce Infrastructure Requirements

  A needs assessment should be performed. Deployment team member roles and skill sets should be identified.

- Develop Deployment Plan

  If a phased approach is taken, the detailed tasks to support this form of implementation should be included. This plan should also specify any customization of requirements activity.

Capability Design

- The capability design phase of deployment takes the requirements and defines an actual deployable unit. At this point, all requirement related concerns have been addressed and the design activities have begun. However, because deployment covers such a wide array of topics, a list of recommending tasks has been provided below.
- Finalize Infrastructure Staffing
- Resources requirements should be finalized. Analysis based on needs should have been completed.
- Analyze, design, develop detailed site surveys
- Deployment locations surveys have been received and analyzed.
- Design Physical Environment

  If new hardware is to be installed, create a new/updated physical layout of deployment site.

- Design and develop training curriculums

  This activity involves the creation of operations and user training documentation. Also, the tailoring and packaging of training material used in the delivery of training is performed here. Augmentation any vendor specific training required

for deployment occurs as well. In addition, training course(s) train the trainer and pre-requisite)

- Design deployment physical environment layout
- Obtain Vendor Support
- Receive equipment and supplies
- Coordinate equipment/services delivery
- Coordinate installation and delivery
- Coordinate facilities build/modification
- Manage quality control reviews and certification tests
- Remove old equipment, if necessary
- Manage Vendors
- Design Business Policies and Procedures

  This task requires coordination with those individuals responsible for training as well. New policies and/or procedures for the end-users that support the deployed applications are designed/written and sent out for review.

Capability Build and Test

- This phase involves developing and testing support components for the following deployment areas: workforce, physical environment, business processes, and application and technology infrastructure. These areas have been outlined below with more specifics regarding the tasks' objectives.
- Recruit and Select Resources

  The needs assessment performed earlier helped refine the resource requirements necessary for the deployment activities. If open roles exist, the deployment lead(s) should conduct a short search with the help of their human resources organization. In addition, the recruiting organization should contact the Modernization Partner for support.
- Initiate Prerequisite Training

  In addition to application specific training, pre-requisite training is also required to bring the personnel up to the required skill level to support the application environment. This activity also includes training users on basic PC/hardware functions, as well as ensuring coordination with technical training.
- Manage Infrastructure and Physical Equipment Procurement

  Procurement/acquisition represents the action of purchasing new assets. The existing procurement process should be updated with up to date information that

allows greater accuracy for planning as well as better asset life cycle management. This would be the initial step for SFA in the process of acquiring new equipment. Provided below are recommendations for tasks that should be accounted for during this stage:

- Manage vendor coordination and resource scheduling
- Manage affected party and stakeholder communications
- Manage standards conformance and regulatory approvals
- Recruit and select required resources as specified by role definitions
- Determine and manage infrastructure software/hardware procurement
- Determine and manage physical equipment procurement
- Provide progress and expenditure status reports (Program Management)
- Provide information to automate a system for asset tagging
- Monitor an asset's life cycle
- Match assets received with the original purchase orders
- Install Infrastructure
- Install Application

  The purpose of this effort is to ensure that the system has been properly installed. This includes verifying all components of the system are operational and all key data components have been converted to the new data format.

- Conduct Data Conversion and Cleansing

  Data conversion is primarily comprised of two activities: static data conversion and dynamic data conversion. Static data is defined as all information that is not subject to change during conversion. Dynamic data is defined as all information that is subject to change during conversion.

  It also includes all efforts required to convert existing legacy systems or install a new application system. This conversion is performed prior to the point in time when the SFA begins using the application in daily business operations.

- Test Installation

  With the architecture defined and verified, and support personnel properly trained on the application, a pilot test is performed. A small portion of the network will be identified for pilot testing. This should have been defined as a deployment requirement earlier. If possible, it is recommended that the pilot environment contain multiple databases. This will allow many aspects of the SFA architecture to be examined that could not be accomplished in a lab scenario (i.e., database access and performance issue). If this deployment involves an enterprise

initiative, the pilot test should be repeated for each of the eCommerce Applications.

- Build and Test Business Policies and Procedures

  This task requires coordination with those individuals responsible for training as well. New policies and/or procedures for the end-users that support the deployed applications are designed and written. They are then sent out for review. Updates are performed as necessary.

- Conduct Production Readiness Review

Deployment

- Deploy Business Policies and Procedures

  The business process and role training activities are conducted at this time. This would include training users on executing the proposed new business processes and new roles defined in conjunction with the application.

- Deploy Physical Environment, Technical Infrastructure and Application

  The tasks of packaging, shipping, installing and configuration of the all physical (facilities, hardware, networking, database servers) and application components (application software, associated initial data) is performed during this phase.

- Certify Software and Hardware Operational Ready

  Verification and confirmation of the system configuration entails configuring the system to the specific environment. The configuration requirements for this deployment will have been developed as part of deployment requirements customization effort. The system configuration includes tasks such as configuring existing applications to interact with the new applications.

  Verification and confirmation of the infrastructure is required to ensure that existing infrastructure components are adequate and configured appropriately to support the initiative. This could be coordinated with a technical infrastructure installation and testing task.

- Conduct Software and Business Procedure Training

- System Training

  This task is performed to train the users on the specific system's functionality. This typically includes screen navigation, data entry, and other system features. Vendors are your primary source for this level of training.

- Business Process/Role Training

  Includes training users on executing the proposed new business processes/procedures and the new roles defined in conjunction with the deployed application.

- Verify Operations Management Processes are in place
- Post conversion activities support includes all immediate activities required by the deployment team (onsite or offsite) to support the conversion until a period of stabilization is reached. This includes activities such as data verification and functionality verification.
- Production support tasks are required to provide ongoing production support beyond the stabilization period. This activity should be coordinated closely with any other SFA consolidated technical support efforts.
- Validate Performance and Metrics Targets

  Performance and metrics have previously been defined. They should be validated with the SFA management team. The performance measurement process defined by the program management office should be utilized during the post-deployment maintenance phase.
- Confirm System Documentation Available
- Validate and Finalize SLA

  Should work with the SFA representatives to validate and finalize the previously obtained service level agreement and operating level agreements. They should be signed off and made a part of the ongoing analysis and evaluation activity.
- Announce Business Capability Availability

  The communication approach should be modified as additional groups impacted by deployment are identified during Stakeholder meetings conducted in detailed design. SFA stakeholders should communicate any SFA initiatives that may influence the deployment schedule. Working in collaboration with the SFA CIO, Channels and COO, a communications plan, announcing the availability of the business capability, should be produced.

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